

PREScore 4.0
NPL Characteristics Data Collection Form
Wilcox Oil Company - 03/27/97

Record Information

1. Site Name: Wilcox Oil Company
(as entered in CERCLIS)
2. Site CERCLIS Number: OKD001010917
3. Site Reviewer: Diane G. Williams
4. Date: March 1997
5. Site Location: Bristow/Creek County, OK
(City/County,State)
6. Congressional District:
7. Site Coordinates: Multiple
Latitude: 35°50'31.0" Longitude: 096°23'02.0"

Site Description

1. Setting: Suburban
2. Current Owner: Private - Individual
3. Current Site Status: Inactive
4. Years of Operation: Inactive Site,from and to dates: 1920 to 1963
5. How Initially Identified: State/Local Program
6. Entity Responsible for Waste Generation:
 - Other - Refinery
7. Site Activities/Waste Deposition:
 - Surface Impoundment
 - Tanks - Above Ground

Waste Description

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8. Wastes Deposited or Detected Onsite:

- Organic Chemicals
- Inorganic Chemicals
- Metals
- Oily Waste
- Lead

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Response Actions

9. Response/Removal Actions:

RCRA Information

10. For All Active Facilities, RCRA Site Status:

- Not Applicable

Demographic Information

11. Workers Present Onsite: No

12. Distance to Nearest Non-Worker Individual: Onsite

13. Residential Population Within 1 Mile: 2393.0

14. Residential Population Within 4 Miles: 6618.0

Water Use Information

15. Local Drinking Water Supply Source:

- Ground Water (within 4 mile distance limit)

16. Total Population Served by Local Drinking Water Supply Source: 4679.0

17. Drinking Water Supply System Type for Local Drinking
Water Supply Sources:

- Municipal (Services over 25 People)
- Private

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18. Surface Water Adjacent to/Draining Site:

- Stream
- Contaminated Stream

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2. Site CERCLIS Number: OKD001010917
3. Site Reviewer: Diane G. Williams
4. Date: March 1997
5. Site Location: Bristow/Creek County, OK
(City/County,State)
6. Congressional District:
7. Site Coordinates: Multiple

Latitude: 35°50'31.0"

Longitude: 096°23'02.0"

	Score
Ground Water Migration Pathway Score (Sgw)	16.13
Surface Water Migration Pathway Score (Ssw)	100.00
Soil Exposure Pathway Score (Ss)	10.67
Air Migration Pathway Score (Sa)	0.00

Site Score	50.93
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NOTE

Site names, and references to specific parcels or properties, are provided for general identification purposes only. Knowledge regarding the extent of sites will be refined as more information is developed during the RI/FS and even during implementation of the remedy.

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HRS DOCUMENTATION RECORD
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GROUND WATER MIGRATION PATHWAY SCORESHEET
Wilcox Oil Company - 03/27/97

GROUND WATER MIGRATION PATHWAY Factor Categories & Factors	Maximum Value	Value Assigned
Likelihood of Release to an Aquifer Aquifer: Barnsdall/Vamoosa-Ad		
1. Observed Release	550	0
2. Potential to Release		
2a. Containment	10	10
2b. Net Precipitation	10	3
2c. Depth to Aquifer	5	5
2d. Travel Time	35	25
2e. Potential to Release [lines 2a(2b+2c+2d)]	500	330
3. Likelihood of Release	550	330
Waste Characteristics		
4. Toxicity/Mobility	*	1.00E+02
5. Hazardous Waste Quantity	*	10000
6. Waste Characteristics	100	32
Targets		
7. Nearest Well	50	2.00E+01
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	1.01E+02
8d. Population (lines 8a+8b+8c)	**	1.01E+02
9. Resources	5	5.00E+00
10. Wellhead Protection Area	20	0.00E+00
11. Targets (lines 7+8d+9+10)	**	1.26E+02
12. Targets (including overlaying aquifers)	**	1.26E+02
13. Aquifer Score	100	16.13
GROUND WATER MIGRATION PATHWAY SCORE (Sgw)	100	16.13

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

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 SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
 Wilcox Oil Company - 03/27/97

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors DRINKING WATER THREAT	Maximum Value	Value Assigned
Likelihood of Release		
1. Observed Release	550	550
2. Potential to Release by Overland Flow		
2a. Containment	10	10
2b. Runoff	25	3
2c. Distance to Surface Water	25	20
2d. Potential to Release by Overland Flow [lines 2a(2b+2c)]	500	230
3. Potential to Release by Flood		
3a. Containment (Flood)	10	10
3b. Flood Frequency	50	25
3c. Potential to Release by Flood (lines 3a x 3b)	500	250
4. Potential to Release (lines 2d+3c)	500	480
5. Likelihood of Release	550	550
Waste Characteristics		
6. Toxicity/Persistence	*	1.00E+04
7. Hazardous Waste Quantity	*	10000
8. Waste Characteristics	100	100
Targets		
9. Nearest Intake	50	0.00E+00
10. Population		
10a. Level I Concentrations	**	0.00E+00
10b. Level II Concentrations	**	0.00E+00
10c. Potential Contamination	**	0.00E+00
10d. Population (lines 10a+10b+10c)	**	0.00E+00
11. Resources	5	0.00E+00
12. Targets (lines 9+10d+11)	**	0.00E+00
13. DRINKING WATER THREAT SCORE	100	0.00

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

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 SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
 Wilcox Oil Company - 03/27/97

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors HUMAN FOOD CHAIN THREAT	Maximum Value	Value Assigned
Likelihood of Release		
14. Likelihood of Release (same as line 5)	550	550
Waste Characteristics		
15. Toxicity/Persistence/Bioaccumulation	*	5.00E+08
16. Hazardous Waste Quantity	*	10000
17. Waste Characteristics	1000	1000
Targets		
18. Food Chain Individual	50	4.50E+01
19. Population		
19a. Level I Concentrations	**	0.00E+00
19b. Level II Concentrations	**	3.00E-02
19c. Pot. Human Food Chain Contamination	**	3.00E-05
19d. Population (lines 19a+19b+19c)	**	3.00E-02
20. Targets (lines 18+19d)	**	4.50E+01
21. HUMAN FOOD CHAIN THREAT SCORE	100	100.00

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

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 SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET
 Wilcox Oil Company - 03/27/97

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT Factor Categories & Factors ENVIRONMENTAL THREAT	Maximum Value	Value Assigned
Likelihood of Release		
22. Likelihood of Release (same as line 5)	550	550
Waste Characteristics		
23. Ecosystem Toxicity/Persistence/Bioacc.	*	5.00E+08
24. Hazardous Waste Quantity	*	10000
25. Waste Characteristics	1000	1000
Targets		
26. Sensitive Environments		
26a. Level I Concentrations	**	0.00E+00
26b. Level II Concentrations	**	0.00E+00
26c. Potential Contamination	**	3.00E+00
26d. Sensitive Environments (lines 26a+26b+26c)	**	3.00E+00
27. Targets (line 26d)	**	3.00E+00
28. ENVIRONMENTAL THREAT SCORE	60	20.00
29. WATERSHED SCORE	100	100.00
30. SW: OVERLAND/FLOOD COMPONENT SCORE (Sof)	100	100.00

* Maximum value applies to waste characteristics category.
 ** Maximum value not applicable.

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SOIL EXPOSURE PATHWAY SCORESHEET
Wilcox Oil Company - 03/27/97

SOIL EXPOSURE PATHWAY Factor Categories & Factors RESIDENT POPULATION THREAT	Maximum Value	Value Assigned
Likelihood of Exposure		
1. Likelihood of Exposure	550	550
Waste Characteristics		
2. Toxicity	*	1.00E+04
3. Hazardous Waste Quantity	*	100
4. Waste Characteristics	100	32
Targets		
5. Resident Individual	50	4.50E+01
6. Resident Population		
6a. Level I Concentrations	**	0.00E+00
6b. Level II Concentrations	**	5.00E+00
6c. Resident Population (lines 6a+6b)	**	5.00E+00
7. Workers	15	0.00E+00
8. Resources	5	0.00E+00
9. Terrestrial Sensitive Environments	***	0.00E+00
10. Targets (lines 5+6c+7+8+9)	**	5.00E+01
11. RESIDENT POPULATION THREAT SCORE	**	8.80E+05

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

*** No specific maximum value applies, see HRS for details.

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SOIL EXPOSURE PATHWAY SCORESHEET
Wilcox Oil Company - 03/27/97

SOIL EXPOSURE PATHWAY Factor Categories & Factors NEARBY POPULATION THREAT	Maximum Value	Value Assigned
Likelihood of Exposure		
12. Attractiveness/Accessibility	100	5.00E+00
13. Area of Contamination	100	6.00E+01
14. Likelihood of Exposure	500	5.00E+00
Waste Characteristics		
15. Toxicity	*	1.00E+04
16. Hazardous Waste Quantity	*	100
17. Waste Characteristics	100	32
Targets		
18. Nearby Individual	1	0.00E+00
19. Population Within 1 Mile	**	2.00E+00
20. Targets (lines 18+19)	**	2.00E+00
21. NEARBY POPULATION THREAT SCORE	**	3.20E+02
SOIL EXPOSURE PATHWAY SCORE (Ss)	100	10.67

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

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AIR PATHWAY SCORESHEET
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AIR MIGRATION PATHWAY Factor Categories & Factors	Maximum Value	Value Assigned
Likelihood of Release		
1. Observed Release	550	0
2. Potential to Release		
2a. Gas Potential to Release	500	0
2b. Particulate Potential to Release	500	0
2c. Potential to Release	500	0
3. Likelihood of Release	550	0
Waste Characteristics		
4. Toxicity/Mobility	*	0.00E+00
5. Hazardous Waste Quantity	*	0
6. Waste Characteristics	100	0
Targets		
7. Nearest Individual	50	0.00E+00
8. Population		
8a. Level I Concentrations	**	0.00E+00
8b. Level II Concentrations	**	0.00E+00
8c. Potential Contamination	**	0.00E+00
8d. Population (lines 8a+8b+8c)	**	0.00E+00
9. Resources	5	0.00E+00
10. Sensitive Environments		
10a. Actual Contamination	***	0.00E+00
10b. Potential Contamination	***	0.00E+00
10c. Sens. Environments (lines 10a+10b)	***	0.00E+00
11. Targets (lines 7+8d+9+10c)	**	0.00E+00
AIR MIGRATION PATHWAY SCORE (Sa)	100	0.00E+00

* Maximum value applies to waste characteristics category.

** Maximum value not applicable.

*** No specific maximum value applies, see HRS for details.

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WASTE QUANTITY
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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Pond 1

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	Pond 1		
b. Source Type	Surface Impoundment		
c. Secondary Source Type	N.A.		
d. Source Vol. (yd3/gal)	Source Area (ft2)	0.00	25000.00
e. Source Volume/Area Value	1.92E+03		
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	0.00E+00		
g. Data Complete?	NO		
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	0.00E+00		
i. Data Complete?	NO		
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	1.92E+03		

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Pyrene	< 2	NO	2.3E+02	ppm
Toluene	< 2	NO	2.7E+02	ppm
Xylene, m-	< 2	NO	2.8E+02	ppm

Documentation for Source Type:

The source consists of a topographic depression designed to hold liquid and/or sludge wastes.

References: 24

Documentation for Source Hazardous Substances:

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Two high concentration waste samples (WS-01 and WS-02) were collected from different locations within Pond 1 on 20 November 1996.

References: 24

Documentation for Source Area:

The area of Pond 1 was determined by measuring from an aerial photograph.

References: 6

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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Pond 2

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Pond 2	
b. Source Type		Surface Impoundment	
c. Secondary Source Type		N.A.	
d. Source Vol. (yd3/gal)	Source Area (ft2)	0.00	100000.00
e. Source Volume/Area Value		7.69E+03	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		0.00E+00	
i. Data Complete?		NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		7.69E+03	

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Aluminum	< 2	NO	2.2E+04	ppm
Antimony	< 2	NO	7.7E+00	ppm
Arsenic	< 2	NO	6.5E+00	ppm
Barium	< 2	NO	1.9E+02	ppm
Beryllium	< 2	NO	1.2E+00	ppm
Copper	< 2	NO	4.2E+01	ppm
Cyanide	< 2	NO	2.0E+00	ppm
Lead	< 2	NO	4.7E+04	ppm
Magnesium	< 2	NO	5.1E+03	ppm
Manganese	< 2	NO	7.0E+02	ppm
Silver	< 2	NO	2.0E+00	ppm
Vanadium	< 2	NO	3.8E+01	ppm
Zinc	< 2	NO	1.3E+02	ppm

Documentation for Source Type:

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The source consists of a pond that was historically used to hold liquid wastes.

References: 6, 7

Documentation for Source Hazardous Substances:

One high concentration waste sample (WS-04) was collected from Pond 2 on 20 November 1996.

References: 24

Documentation for Source Area:

Source area was determined by measuring from aerial photos.

References: 6, 7

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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Pit

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Pit	
b. Source Type		Surface Impoundment	
c. Secondary Source Type		N.A.	
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	70686.00
e. Source Volume/Area Value		5.44E+03	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		0.00E+00	
i. Data Complete?		NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		5.44E+03	

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Acetone	< 2	NO	2.2E+00	ppm
Arsenic	< 2	NO	8.7E+00	ppm
Copper	< 2	NO	1.0E+02	ppm
Lead	< 2	NO	3.7E+03	ppm
Mercury	< 2	NO	1.1E-01	ppm
Methylnaphthalene, 2-	< 2	NO	1.4E+04	ppm
Phenanthrene	< 2	NO	5.2E+02	ppm
Selenium	< 2	NO	8.4E-01	ppm
Silver	< 2	NO	6.7E-01	ppm
Xylene, m-	< 2	NO	4.5E-01	ppm

Documentation for Source Type:

The source type "surface impoundment" was selected for the Pit because it is a topographic depression that was designed to hold

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liquid/sludge wastes.

References: 24

Documentation for Source Hazardous Substances:

Two high concentration waste samples (WS-05 and WS-06) were collected from the Pit on 20 November 1996. Waste sample WS-06 is a field duplicate of WS-05, and was collected for QA/QC purposes.

References: 24

Documentation for Source Area:

The source area was estimated by measuring the diameter from an aerial photograph and calculating the area by using the formula for determining the area of a circle.

References: 6, 7

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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: (b) (6) Pond

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	(b) (6) Pond		
b. Source Type	Surface Impoundment		
c. Secondary Source Type	N.A.		
d. Source Vol. (yd3/gal)	Source Area (ft2)	0.00	10000.00
e. Source Volume/Area Value	7.69E+02		
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	0.00E+00		
g. Data Complete?	NO		
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	0.00E+00		
i. Data Complete?	NO		
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	7.69E+02		

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Copper	< 2	NO	2.9E+00	ppm
Lead	< 2	NO	5.4E+01	ppm

Documentation for Source Type:

The source type "surface impoundment" was selected because it is a topographic depression that is designed to hold liquid/sludge wastes.

References: 24

Documentation for Source Hazardous Substances:

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One sediment sample (SED-05) was collected from the (b) Pond on 19 November 1996.

References: 24

Documentation for Source Area:

The area was estimated by measuring from an aerial photograph.

References: 6, 7

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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Tank Bottom

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Tank Bottom	
b. Source Type		Contaminated Soil	
c. Secondary Source Type		N.A.	
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	12272.00
e. Source Volume/Area Value		3.61E-01	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		0.00E+00	
i. Data Complete?		NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		3.61E-01	

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Cyanide	< 2	NO	9.5E-01	ppm
Manganese	< 2	NO	9.4E+02	ppm
Selenium	< 2	NO	4.7E-01	ppm
Silver	< 2	NO	9.0E-01	ppm
Zinc	< 2	NO	1.6E+02	ppm

Documentation for Source Type:

The source consists of an area of soils contaminated with tank bottom material.

References: 24

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Documentation for Source Hazardous Substances:

One high concentration waste sample (WS-08) was collected from the tank bottom area on 20 November 1996.

References: 24

Documentation for Source Area:

The source area was estimated by measuring the diameter of the source from an aerial photo and using the formula for calculating the area of a circle.

References: 6, 24

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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Tank Bottom (b) (6)

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Tank Bottom (b) (6)	
b. Source Type		Contaminated Soil	
c. Secondary Source Type		N.A.	
d. Source Vol. (yd3/gal)	Source Area (ft2)	0.00	12272.00
e. Source Volume/Area Value		3.61E-01	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		0.00E+00	
i. Data Complete?		NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		3.61E-01	

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Pyrene	< 2	NO	5.4E+01	ppm

Documentation for Source Type:

The source consists of an area of soils contaminated with tank bottom material (waste source sample, WS-03).

References: 24

Documentation for Source Hazardous Substances:

Waste sample WS-03 was collected from the tank bottom area located adjacent to the (b) residence on 20 November 1996.

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References: 24

Documentation for Source Area:

Source area was estimated by measuring from an aerial photograph.

References: 6

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1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: Unvegetated Area

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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Wilcox Oil Company - 03/27/97

2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID		Unvegetated Area	
b. Source Type		Contaminated Soil	
c. Secondary Source Type		N.A.	
d. Source Vol. (yd3/gal)	Source Area (ft2)	0.00	10000.00
e. Source Volume/Area Value		2.94E-01	
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)		0.00E+00	
g. Data Complete?		NO	
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)		0.00E+00	
i. Data Complete?		NO	
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)		2.94E-01	

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Copper	< 2	NO	1.3E+02	ppm
Lead	< 2	NO	5.5E+04	ppm

Documentation for Source Type:

The source consists of an area of bare, unvegetated soils.

References: 24

Documentation for Source Hazardous Substances:

One soil sample (SS-06) was collected from the unvegetated area on 18 November 1996.

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WASTE QUANTITY
Wilcox Oil Company - 03/27/97

References: 24

Documentation for Source Area:

The area was estimated by measuring from an aerial photograph.

References: 6, 24

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WASTE QUANTITY
Wilcox Oil Company - 03/27/97

1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: (b) Property

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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WASTE QUANTITY
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2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	(b) Property		
b. Source Type	Contaminated Soil		
c. Secondary Source Type	N.A.		
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	100.00
e. Source Volume/Area Value	2.94E-03		
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	0.00E+00		
g. Data Complete?	NO		
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	0.00E+00		
i. Data Complete?	NO		
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	2.94E-03		

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Benzo(g,h,i)perylene	< 2	NO	4.4E-01	ppm
Chrysene	< 2	NO	6.9E-01	ppm
Lead	< 2	NO	3.7E+02	ppm
Mercury	< 2	NO	1.8E-01	ppm
Phenanthrene	< 2	NO	7.9E-01	ppm
Pyrene	< 2	NO	5.6E-01	ppm
Zinc	< 2	NO	1.3E+02	ppm

Documentation for Source Type:

The source consists of contaminated soils documented by a soil sample in the (b) (6) yard.

References: 24

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WASTE QUANTITY
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Documentation for Source Hazardous Substances:

Soil sample SS-05 was collected from the (b) (6) yard on 18 November 1996.

References: 24

Documentation for Source Area:

The source area is unknown and was conservatively estimated to be at least 100 square feet.

References: 24

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WASTE QUANTITY
Wilcox Oil Company - 03/27/97

1. WASTESTREAM QUANTITY SUMMARY TABLE, SOURCE: (b) Property

a. Wastestream ID	
b. Hazardous Constituent Quantity (C) (lbs.)	0.00
c. Data Complete?	NO
d. Hazardous Wastestream Quantity (W) (lbs.)	0.00
e. Data Complete?	NO
f. Wastestream Quantity Value (W/5,000)	0.00E+00

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WASTE QUANTITY
Wilcox Oil Company - 03/27/97

2. SOURCE HAZARDOUS WASTE QUANTITY FACTOR TABLE

a. Source ID	(b) Property		
b. Source Type	Contaminated Soil		
c. Secondary Source Type	N.A.		
d. Source Vol.(yd3/gal)	Source Area (ft2)	0.00	22500.00
e. Source Volume/Area Value	6.62E-01		
f. Source Hazardous Constituent Quantity (HCQ) Value (sum of 1b)	0.00E+00		
g. Data Complete?	NO		
h. Source Hazardous Wastestream Quantity (WSQ) Value (sum of 1f)	0.00E+00		
i. Data Complete?	NO		
k. Source Hazardous Waste Quantity (HWQ) Value (2e, 2f, or 2h)	6.62E-01		

Source Hazardous Substances	Depth (feet)	Liquid	Concent.	Units
Acetone	< 2	NO	4.8E-02	ppm

Documentation for Source Type:

The source consists of contaminated soils documented by a soil sample collected from the (b) (6) yard.

References: 24

Documentation for Source Hazardous Substances:

Two soil samples (SS-07 and SS-08) were collected from the (b) yard on 19 November 1996. Soil sample SS-08 is a field duplicate of

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SS-07.

References: 24

Documentation for Source Area:

The source area was estimated from an aerial photograph.

References: 6, 24

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3. SITE HAZARDOUS WASTE QUANTITY SUMMARY

No.	Source ID	Migration Pathways	Vol. or Area Value (2e)	Constituent or Wastestream Value (2f,2h)	Hazardous Waste Qty. Value (2k)
1	Pond 1	GW-SW-SE	1.92E+03	0.00E+00	1.92E+03
2	Pond 2	GW-SW-SE	7.69E+03	0.00E+00	7.69E+03
3	Pit	GW-SW-SE	5.44E+03	0.00E+00	5.44E+03
4	(b) Pond	GW-SW-SE	7.69E+02	0.00E+00	7.69E+02
5	Tank Bottom	GW-SW-SE	3.61E-01	0.00E+00	3.61E-01
6	Tank Bottom (b) (6)	GW-SW-SE	3.61E-01	0.00E+00	3.61E-01
7	Unvegetated Area	GW-SW-SE	2.94E-01	0.00E+00	2.94E-01
8	(b) (6) Property	GW-SW-SE	2.94E-03	0.00E+00	2.94E-03
9	(b) Property	GW-SW-SE	6.62E-01	0.00E+00	6.62E-01
	(6)				

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WASTE QUANTITY
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4. PATHWAY HAZARDOUS WASTE QUANTITY AND WASTE CHARACTERISTICS SUMMARY TABLE

Migration Pathway	Contaminant Values	HWQVs*	WCVs**
Ground Water	Toxicity/Mobility 1.00E+02	10000	32
SW: Overland Flow, DW	Tox./Persistence 1.00E+04	10000	100
SW: Overland Flow, HFC	Tox./Persis./Bioacc. 5.00E+08	10000	1000
SW: Overland Flow, Env	Etox./Persis./Bioacc. 5.00E+08	10000	1000
SW: GW to SW, DW	Tox./Persistence 1.00E+02	10000	32
SW: GW to SW, HFC	Tox./Persis./Bioacc. 1.00E+04	10000	100
SW: GW to SW, Env	Etox./Persis./Bioacc. 5.00E+04	10000	100
Soil Exposure: Resident	Toxicity 1.00E+04	100	32
Soil Exposure: Nearby	Toxicity 1.00E+04	100	32
Air	Toxicity/Mobility 0.00E+00	0	0

* Hazardous Waste Quantity Factor Values

** Waste Characteristics Factor Category Values

Note: SW = Surface Water
 GW = Ground Water
 DW = Drinking Water Threat
 HFC = Human Food Chain Threat
 Env = Environmental Threat

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GROUND WATER PATHWAY AQUIFER SUMMARY
Wilcox Oil Company - 03/27/97

No. Aquifer ID	Type	Overlaying No.	Inter- Connected with	Likelihood of Release	Targets
1 Barnsdall/Vamoosa-Ad	Non K	0	0	330	1.26E+02

Containment

No.	Source ID	HWQ Value	Containment Value
1	Pond 1	1.92E+03	10
2	Pond 2	7.69E+03	10
3	Pit	5.44E+03	10
4	(b) (6) Pond	7.69E+02	10
5	Tank Bottom	3.61E-01	10
6	Tank Bottom (b) (6)	3.61E-01	10
7	Unvegetated Area	2.94E-01	10
8	(b) (6) Property	2.94E-03	10
9	(b) Property	6.62E-01	10

=====
Containment Factor 10

Documentation for Ground Water Containment, Source Pond 1:

A groundwater containment factor of 10 was selected from HRS Table 3-2 because the source has no liner.

References: 24

Documentation for Ground Water Containment, Source Pond 2:

See documentation for Source 1.

References:

Documentation for Ground Water Containment, Source Pit:

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GROUND WATER PATHWAY AQUIFER SUMMARY
Wilcox Oil Company - 03/27/97

See documentation for Source 1.

References:

Documentation for Ground Water Containment, Source (b) (6) Pond:

See documentation for Source 1.

References:

Documentation for Ground Water Containment, Source Tank Bottom:

The source consists of an area of contaminated soil. No containment features (such as a liner) are present for the source, therefore a containment factor of 10 was assigned from HRS Table 3-2.

References: 24

Documentation for Ground Water Containment, Source Tank Bottom (b) (6) :

See documentation for Source 5.

References:

Documentation for Ground Water Containment, Source Unvegetated Area:

See documentation for Source 5.

References:

Documentation for Ground Water Containment, Source (b) (6) Property:

See documentation for Source 5.

References:

PREScore 4.0
GROUND WATER PATHWAY AQUIFER SUMMARY
Wilcox Oil Company - 03/27/97

Documentation for Ground Water Containment, Source (b) Property:

See documentation for source 5.

References:

Net Precipitation

Net Precipitation (inches)	8.90
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Documentation for Net Precipitation:

The net precipitation was calculated using the Thornthwaite method.

References: 14

PREScore 4.0
GROUND WATER PATHWAY LIKELIHOOD OF RELEASE Barnsdall/Vamoosa-Ada
AQUIFER
Wilcox Oil Company - 03/27/97

Aquifer: Barnsdall/Vamoosa-Ada

Type of Aquifer: Non Karst

Overlaying Aquifer: 0

Interconnected with: 0

Documentation for Barnsdall/Vamoosa-Ada Aquifer:

For PREScore purposes, these aquifers will be grouped as one, and the Tallant is assumed to be absent.

References: 1, 13, 24

OBSERVED RELEASE

No.	Well ID	Well Type	Distance (miles)	Level of Contamination
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- N/A and/or data not specified

Observed Release Factor

0

PREScore 4.0
GROUND WATER PATHWAY LIKELIHOOD OF RELEASE Barnsdall/Vamoosa-Ada
AQUIFER
Wilcox Oil Company - 03/27/97

POTENTIAL TO RELEASE

Containment

Containment Factor	10
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Net Precipitation

Net Precipitation Factor	3
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Depth to Aquifer

A. Depth of Hazardous Substances	0.50	feet
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Documentation for Depth of Hazardous Substances:

Based on samples collected from the on-site sources as part of the ESI field activities, the maximum depth of known contamination is 0.5 foot below ground surface. Because subsurface sampling was not conducted as part of the ESI, the actual depth of contamination is not known.

References: 24

B. Depth to Aquifer from Surface	25.00	feet
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Documentation for Depth to Aquifer from Surface :

The depth to the shallowest water-bearing unit is reportedly less than 25 feet.

References: 1

C. Depth to Aquifer (B - A)	24.50	feet
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GROUND WATER PATHWAY LIKELIHOOD OF RELEASE Barnsdall/Vamoosa-Ada
AQUIFER
Wilcox Oil Company - 03/27/97

Depth to Aquifer Factor 5

Travel Time

Are All Layers Karst? NO

Thickness of Layer(s) with Lowest Conductivity 25.00 feet

Documentation for Thickness of Layers with Lowest Conductivity:

There are no low conductivity layers between the aquifer and sources. Therefore, the thickness of lowest hydraulic conductivity layers is estimated to be the depth to groundwater (25 feet).

References: 24

Hydraulic Conductivity (cm/sec) 1.0E-05

Documentation for Hydraulic Conductivity:

Hydraulic conductivity was estimated from HRS Table 3-6.

References: 24

Travel Time Factor 25

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Potential to Release Factor	330
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PREScore 4.0
GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 1 Pond 1

Source Hazardous Waste Quantity Value: 1923.08

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Pyrene	100	2.00E-05	2.00E-03
Toluene	10	1.00E+00	1.00E+01
Xylene, m-	1	1.00E+00	1.00E+00

PREScore 4.0
GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 2 Pond 2

Source Hazardous Waste Quantity Value: 7692.31

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Aluminum	0	2.00E-09	0.00E+00
Antimony	10000	1.00E-02	1.00E+02
Arsenic	10000	1.00E-02	1.00E+02
Barium	10	1.00E-02	1.00E-01
Beryllium	10000	1.00E-02	1.00E+02
Copper	0	1.00E-02	0.00E+00
Cyanide	100	2.00E-05	2.00E-03
Lead	0	2.00E-05	0.00E+00
Magnesium	0	2.00E-05	0.00E+00
Manganese	10000	1.00E-02	1.00E+02
Silver	100	2.00E-05	2.00E-03
Vanadium	100	2.00E-07	2.00E-05
Zinc	10	2.00E-03	2.00E-02

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GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 3 Pit

Source Hazardous Waste Quantity Value: 5437.38

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Acetone	10	1.00E+00	1.00E+01
Arsenic	10000	1.00E-02	1.00E+02
Copper	0	1.00E-02	0.00E+00
Lead	0	2.00E-05	0.00E+00
Mercury	10000	2.00E-07	2.00E-03
Methylnaphthalene, 2-	0	2.00E-03	0.00E+00
Phenanthrene	0	2.00E-03	0.00E+00
Selenium	100	1.00E-02	1.00E+00
Silver	100	2.00E-05	2.00E-03
Xylene, m-	1	1.00E+00	1.00E+00

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GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 4 (b) Pond

Source Hazardous Waste Quantity Value: 769.23

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Copper	0	1.00E-02	0.00E+00
Lead	0	2.00E-05	0.00E+00

PREScore 4.0
GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 5 Tank Bottom

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Cyanide	100	2.00E-05	2.00E-03
Manganese	10000	1.00E-02	1.00E+02
Selenium	100	1.00E-02	1.00E+00
Silver	100	2.00E-05	2.00E-03
Zinc	10	2.00E-03	2.00E-02

PREScore 4.0
GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 6 Tank Bottom (b) (6)

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Pyrene	100	2.00E-05	2.00E-03

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GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 7 Unvegetated Area

Source Hazardous Waste Quantity Value: 0.29

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Copper	0	1.00E-02	0.00E+00
Lead	0	2.00E-05	0.00E+00

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GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 8 (b) Property

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Benzo(g,h,i)perylene	0	2.00E-09	0.00E+00
Chrysene	10	2.00E-07	2.00E-06
Lead	0	2.00E-05	0.00E+00
Mercury	10000	2.00E-07	2.00E-03
Phenanthrene	0	2.00E-03	0.00E+00
Pyrene	100	2.00E-05	2.00E-03
Zinc	10	2.00E-03	2.00E-02

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GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 9 (b) Property

Source Hazardous Waste Quantity Value: 0.66

Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
Acetone	10	1.00E+00	1.00E+01

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GROUND WATER PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Hazardous Substances Found in an Observed Release

Well No.	Observed Release Hazardous Substance	Toxicity Value	Mobility Value	Toxicity/ Mobility Value
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- N/A and/or data not specified

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Barnsdall/Vamoosa-Ada
Wilcox Oil Company - 03/27/97

Toxicity/Mobility Value from Source Hazardous Substances:	1.00E+02
Toxicity/Mobility Value from Observed Release Hazardous Substances:	0.00E+00
Toxicity/Mobility Factor:	1.00E+02
Sum of Source Hazardous Waste Quantity Values:	1.58E+04
Hazardous Waste Quantity Factor:	10000
Waste Characteristics Factor Category:	32

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Barnsdall/Vamoosa-Ada
Wilcox Oil Company - 03/27/97

Population by Well

No.	Well ID	Sample Type	Distance (miles)	Level of Contamination Population
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- N/A and/or data not specified

Level I Population Factor: 0.00

Level II Population Factor: 0.00

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Barnsdall/Vamoosa-Ada
Wilcox Oil Company - 03/27/97

Potential Contamination by Distance Category

Distance Category (miles)	Population	Value
> 0 to 1/4	3.0	4.00E-01
> 1/4 to 1/2	0.0	0.00E+00
> 1/2 to 1	176.0	5.20E+00
> 1 to 2	4368.0	9.39E+01
> 2 to 3	54.0	7.00E-01
> 3 to 4	78.0	4.00E-01

Potential Contamination Factor: 101.000

Nearest Well

Level of Contamination: Potential
Distance in miles: 0.25

Nearest Well Factor: 2.00E+01

Documentation for Nearest Well:

The nearest identified well is a private well, located 0.25 mile north of the site.

References: 1

Resources

Resource Use: YES

Resource Factor: 5.00E+00

Documentation for Resources:

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GROUND WATER PATHWAY TARGETS FOR AQUIFER Barnsdall/Vamoosa-Ada
Wilcox Oil Company - 03/27/97

Groundwater in the vicinity of the site is used for irrigation and livestock watering.

References: 1

Wellhead Protection Area

No wellhead protection area

Wellhead Protection Area Factor: 0.00E+00

Documentation for Wellhead Protection Area:

The site is not located in a well-head protection area.

References: 1

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SURFACE WATER PATHWAY SEGMENT SUMMARY
Wilcox Oil Company - 03/27/97

No. Segment ID	Segment Type	Water Type	Start Point (mi)	End Point (mi)	Average Flow (cfs)
1 Sand Creek	River	Fresh	0.00	3.50	50
2 Little Deep Fork	River	Fresh	3.50	15.00	400

Documentation for segment: Sand Creek:

Segment length was determined by measuring from a topographic map (Reference 2). Estimated average flow rate was estimated from hydrologic data for streams in the watershed (Reference 1).

References: 1, 2

Documentation for segment: Little Deep Fork:

See documentation for Sand Creek.

References:

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SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE

Wilcox Oil Company - 03/27/97

OBSERVED RELEASE

No.	Sample ID	Sample Type	Distance (miles)	Level of Contamination		
				DW	HFC	Env
1	SED-09	Sediment	0.000	Level II	Level II	Level II
2	SED-10	Sediment	0.600	Level II	Level II	Level II

Sample No.	Hazardous Substance	Concent.	Units
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1	Copper	1.5E+03	ppb
2	Copper	1.9E+03	ppb

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Observed Release Factor 550

Documentation for Observed Release, Sample SED-09:

Sediment sample SED-09 was collected at probable point of entry (PPE) 3 on 19 November 1996. Sample results indicate that copper was detected at greater than 3 times the maximum background concentration. This constituent was also detected in on-site sources at concentrations significantly above background levels.

References: 24

Documentation for Observed Release, Sample SED-10:

Sediment sample SED-10 was collected approximately 0.6 mile downstream of PPE-3 on 19 November 1996.

References: 24

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SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
Wilcox Oil Company - 03/27/97

POTENTIAL TO RELEASE

Potential to Release by Overland Flow

Containment

No.	Source ID	HWQ Value	Containment Value
1	Pond 1	1.92E+03	10
2	Pond 2	7.69E+03	10
3	Pit	5.44E+03	10
4	(b) Pond	7.69E+02	10
5	Tank Bottom	3.61E-01	10
6	Tank Bottom (b) (6)	3.61E-01	10
7	Unvegetated Area	2.94E-01	10
8	(b) (6) Property	2.94E-03	10
9	(b) Property	6.62E-01	10

=====
Containment Factor: 10

Documentation for Overland Flow Containment, Source Pond 1:

A containment factor of 10 was selected from HRS Table 4-2 because the source has free liquids (seeps) with no diking.

References: 24

Documentation for Overland Flow Containment, Source Pond 2:

See documentation for Source 1.

References:

Documentation for Overland Flow Containment, Source Pit:

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SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
Wilcox Oil Company - 03/27/97

See documentation for Source 1.

References:

Documentation for Overland Flow Containment, Source (b) (6) Pond:

See documentation for Source 1.

References:

Documentation for Overland Flow Containment, Source Tank Bottom:

A containment factor of 10 was selected from HRS Table 4-2 because the source does not have a maintained engineered cover nor a functioning and maintained run-on control system and runoff management system.

References: 24

Documentation for Overland Flow Containment, Source Tank Bottom (b) (6) :

See documentation for Source 5.

References:

Documentation for Overland Flow Containment, Source Unvegetated Area:

See documentation for source 5.

References: 24

Documentation for Overland Flow Containment, Source (b) (6) Property:

See documentation for Source 5.

References:

PREScore 4.0
SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
Wilcox Oil Company - 03/27/97

Documentation for Overland Flow Containment, Source (b) Property:

See documentation for Source 5.

References:

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SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
Wilcox Oil Company - 03/27/97

Distance to Surface Water

Distance to Surface Water: 400.0 feet
Distance to Surface Water Factor: 20

Documentation for Distance to surface Water:

Distance to surface water was determined from a topographic map by measuring from the unvegetated area on the (b) (6) property to Sand Creek, via the intermittent creek.

References: 2, 24

Runoff

A. Drainage Area: 98.0 acres

Documentation for Drainage Area:

The drainage area is assumed to be equivalent to the area of the site.

References: 24

B. 2-year, 24-hour Rainfall: 4.2 inches

Documentation for Rainfall:

Rainfall was determined from the U.S. Department of Commerce, Rainfall Frequency Atlas.

References: 18

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SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE

Wilcox Oil Company - 03/27/97

- C. Soil Group: C
Moderately-fine textured soils with low infiltration rates

Documentation for Soil Group:

Based on the Creek County Soil Survey, the majority of the site soils are classified as the Stephenville and Darnell fine sandy loams.

References: 22

Runoff Factor: 3

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Potential to Release by Overland Flow Factor: 230

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SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
Wilcox Oil Company - 03/27/97

Potential to Release by Flood

No.	Source ID	HWQ Value	Flood Containment Value	Flood Frequency Value	Potential to Release by Flood
4	(b) (6) Pond	7.69E+02	10	25	250
6	Tank Bottom (b) (6)	3.61E-01	10	25	250
7	Unvegetated Area	2.94E-01	10	25	250
9	(b) (6) Property	6.62E-01	10	25	250

=====

Potential to Release by Flood Factor: 250

Documentation for Flood Containment, Source Pond 1:

Sources at the site have no flood containment features.

References: 24

Documentation for Flood Frequency, Source Pond 1:

According to flood hazard maps obtained from FEMA, the source occurs outside the flood hazard zone.

References: 17

Documentation for Flood Containment, Source Pond 2:

See documentation for Source 1.

References:

PREScore 4.0
SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
Wilcox Oil Company - 03/27/97

Documentation for Flood Frequency, Source Pond 2:

Based on FEMA maps, the source occurs outside the flood hazard zone.

References: 17

Documentation for Flood Containment, Source Pit:

See documentation for Source 1.

References:

Documentation for Flood Frequency, Source Pit:

Based on FEMA maps, the source occurs outside the flood hazard zone.

References: 17

Documentation for Flood Containment, Source (b) (6) Pond:

See documentation for Source 1.

References:

Documentation for Flood Frequency, Source (b) (6) Pond:

Based on FEMA maps, the source occurs within a flood hazard zone.

References: 17

Documentation for Flood Containment, Source Tank Bottom:

No flood containment features are present for the source.

PREScore 4.0
SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
Wilcox Oil Company - 03/27/97

References: 24

Documentation for Flood Frequency, Source Tank Bottom:

The source occurs outside the flood hazard area, according to FEMA maps.

References: 17

Documentation for Flood Containment, Source Tank Bottom (b) (6) :

No flood containment features are present for the source.

References: 24

Documentation for Flood Frequency, Source Tank Bottom (b) (6)

Based on FEMA and topographic maps, it appears the source is located within a flood hazard area.

References: 2, 24

Documentation for Flood Containment, Source Unvegetated Area:

No flood containment features are present for the source.

References: 24

Documentation for Flood Frequency, Source Unvegetated Area:

Based FEMA and topographic maps, the source appears to be in a flood hazard zone.

References: 2, 17

PREScore 4.0
SURFACE WATER PATHWAY OVERLAND FLOW/FLOOD COMPONENT LIKELIHOOD OF
RELEASE
Wilcox Oil Company - 03/27/97

Documentation for Flood Containment, Source (b) (6) Property:

The source consists of contaminated soils in a residential yard; no flood containment features are present for the source.

References: 24

Documentation for Flood Frequency, Source (b) (6) Property:

Based on FEMA maps, the source occurs outside the flood hazard zone.

References: 17

Documentation for Flood Containment, Source (b) (6) Property:

The source consists of contaminated soils in the (b) (6) yard; no flood containment features exist for the source.

References: 24

Documentation for Flood Frequency, Source (b) (6) Property:

Based on FEMA maps, the source occurs in a flood hazard area.

References: 17

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 1 Pond 1

Source Hazardous Waste Quantity Value: 1923.08

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Pyrene	100	1.00E+00	1.00E+02
Toluene	10	4.00E-01	4.00E+00
Xylene, m-	1	4.00E-01	4.00E-01

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 2 Pond 2

Source Hazardous Waste Quantity Value: 7692.31

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Aluminum	0	1.00E+00	0.00E+00
Antimony	10000	1.00E+00	1.00E+04
Arsenic	10000	1.00E+00	1.00E+04
Barium	10	1.00E+00	1.00E+01
Beryllium	10000	1.00E+00	1.00E+04
Copper	0	1.00E+00	0.00E+00
Cyanide	100	4.00E-01	4.00E+01
Lead	0	1.00E+00	0.00E+00
Magnesium	0	1.00E+00	0.00E+00
Manganese	10000	1.00E+00	1.00E+04
Silver	100	1.00E+00	1.00E+02
Vanadium	100	1.00E+00	1.00E+02
Zinc	10	1.00E+00	1.00E+01

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 3 Pit

Source Hazardous Waste Quantity Value: 5437.38

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Acetone	10	4.00E-01	4.00E+00
Arsenic	10000	1.00E+00	1.00E+04
Copper	0	1.00E+00	0.00E+00
Lead	0	1.00E+00	0.00E+00
Mercury	10000	1.00E+00	1.00E+04
Methylnaphthalene, 2-	0	4.00E-01	0.00E+00
Phenanthrene	0	1.00E+00	0.00E+00
Selenium	100	1.00E+00	1.00E+02
Silver	100	1.00E+00	1.00E+02
Xylene, m-	1	4.00E-01	4.00E-01

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 4 (b) Pond

Source Hazardous Waste Quantity Value: 769.23

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Copper	100	1.00E+00	1.00E+02
Lead	100	1.00E+00	1.00E+02

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 5 Tank Bottom

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Cyanide	100	4.00E-01	4.00E+01
Manganese	10000	1.00E+00	1.00E+04
Selenium	100	1.00E+00	1.00E+02
Silver	100	1.00E+00	1.00E+02
Zinc	10	1.00E+00	1.00E+01

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 6 Tank Bottom (b) (6)

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Pyrene	100	1.00E+00	1.00E+02

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 7 Unvegetated Area

Source Hazardous Waste Quantity Value: 0.29

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Copper	100	1.00E+00	1.00E+02
Lead	100	1.00E+00	1.00E+02

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 8 (b) Property

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Benzo(g,h,i)perylene	0	1.00E+00	0.00E+00
Chrysene	10	1.00E+00	1.00E+01
Lead	0	1.00E+00	0.00E+00
Mercury	10000	1.00E+00	1.00E+04
Phenanthrene	0	1.00E+00	0.00E+00
Pyrene	100	1.00E+00	1.00E+02
Zinc	10	1.00E+00	1.00E+01

PREScore 4.0
 SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
 CHARACTERISTICS
 Wilcox Oil Company - 03/27/97

Source: 9([REDACTED] Property

Source Hazardous Waste Quantity Value: 0.66

Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
Acetone	10	4.00E-01	4.00E+00

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD DRINKING WATER THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Hazardous Substances Found in an Observed Release

Sample No.	Observed Release Hazardous Substance	Toxicity Value	Persistence Value	Toxicity/ Persistence Value
1	Copper	100	1.00E+00	1.00E+02
2	Copper	100	1.00E+00	1.00E+02

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
Wilcox Oil Company - 03/27/97

Toxicity/Persistence Value from Source Hazardous Substances:	1.00E+04
Toxicity/Persistence Value from Observed Release Hazardous Substances:	0.00E+00
Toxicity/Persistence Factor:	1.00E+04
Sum of Source Hazardous Waste Quantity Values:	1.58E+04
Hazardous Waste Quantity Factor:	10000
Waste Characteristics Factor Category:	100

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
Wilcox Oil Company - 03/27/97.

Level I Concentrations

- N/A and/or data not specified

Level II Concentrations

Sample ID: SED-09

Sample Medium: Sediment

Location: 0.00 miles

Hazardous Substance	Hazardous Substance Concentration	DW MCL Benchmark Concentration	Units
Copper	1.5E+03	N.A.	ppb

Documentation for SED-09:

Sediment sample SED-09 was collected at probable point of entry (PPE) 3 on 19 November 1996. Sample results indicate that copper was detected at greater than 3 times the maximum background concentration. This constituent was also detected in on-site sources at concentrations significantly above background levels.

References: 24

Sample ID: SED-10

Sample Medium: Sediment

Location: 0.60 miles

Hazardous Substance	Hazardous Substance Concentration	DW MCL Benchmark Concentration	Units
Copper	1.9E+03	N.A.	ppb

Documentation for SED-10:

Sediment sample SED-10 was collected approximately 0.6 mile downstream of PPE-3 on 19 November 1996.

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
Wilcox Oil Company - 03/27/97

References: 24

Most Distant Level I Sample

- N/A and/or data not specified

Most Distant Level II Sample

Sample ID: SED-10

Distance from the Probable Point of Entry: 0.60 miles

Documentation for SED-10:

Sediment sample SED-10 was collected approximately 0.6 mile downstream of PPE-3 on 19 November 1996.

References: 24

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
Wilcox Oil Company - 03/27/97

Level I Concentrations

Intake	Distance Along the In-water Segment from the Probable Point of Entry (miles)	Population
--------	--	------------

- N/A and/or data not specified

Population Served by Level I Intakes: 0.0

Level I Population Factor: 0.00E+00

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
Wilcox Oil Company - 03/27/97

Level II Concentrations

Intake	Distance Along the In-water Segment from the Probable Point of Entry (miles)	Population
--------	--	------------

- N/A and/or data not specified

=====

Population Served by Level II Intakes: 0.0

Level II Population Factor: 0.00E+00

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT DRINKING WATER THREAT TARGETS
 Wilcox Oil Company - 03/27/97

Potential Contamination

Intake ID	Average Annual Flow (cfs)	Population Served
- N/A and/or data not specified		

Type of Surface Water Body	Total Population	Dilution-Weighted Population
- N/A and/or data not specified		

=====

Dilution-Weighted Population Served
 by Potentially Contaminated Intakes: 0.0

Potential Contamination Factor: 0.0

Nearest Intake

Location of Nearest Drinking Water Intake: N.A.

Nearest Intake Factor: 0.00

Resources

Resource Use: NO

Resource Value: 0.00E+00

Documentation for Resources:

No resources identified.

References:

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 1 Pond 1

Source Hazardous Waste Quantity Value: 1923.08

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Pyrene	100	1.00E+00	5.00E+01	5.00E+03
Toluene	10	4.00E-01	5.00E+01	2.00E+02
Xylene, m-	1	4.00E-01	5.00E+02	2.00E+02

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 2 Pond 2

Source Hazardous Waste Quantity Value: 7692.31

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Aluminum	0	1.00E+00	5.00E+01	0.00E+00
Antimony	10000	1.00E+00	5.00E-01	5.00E+03
Arsenic	10000	1.00E+00	5.00E+00	5.00E+04
Barium	10	1.00E+00	5.00E-01	5.00E+00
Beryllium	10000	1.00E+00	5.00E+01	5.00E+05
Copper	0	1.00E+00	5.00E+04	0.00E+00
Cyanide	100	4.00E-01	5.00E-01	2.00E+01
Lead	0	1.00E+00	5.00E+01	0.00E+00
Magnesium	0	1.00E+00	5.00E-01	0.00E+00
Manganese	10000	1.00E+00	5.00E-01	5.00E+03
Silver	100	1.00E+00	5.00E+01	5.00E+03
Vanadium	100	1.00E+00	5.00E-01	5.00E+01
Zinc	10	1.00E+00	5.00E+02	5.00E+03

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 3 Pit

Source Hazardous Waste Quantity Value: 5437.38

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Acetone	10	4.00E-01	5.00E-01	2.00E+00
Arsenic	10000	1.00E+00	5.00E+00	5.00E+04
Copper	0	1.00E+00	5.00E+04	0.00E+00
Lead	0	1.00E+00	5.00E+01	0.00E+00
Mercury	10000	1.00E+00	5.00E+04	5.00E+08
Methylnaphthalene, 2-	0	4.00E-01	5.00E+03	0.00E+00
Phenanthrene	0	1.00E+00	5.00E+01	0.00E+00
Selenium	100	1.00E+00	5.00E+03	5.00E+05
Silver	100	1.00E+00	5.00E+01	5.00E+03
Xylene, m-	1	4.00E-01	5.00E+02	2.00E+02

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 4 (b) Pond

Source Hazardous Waste Quantity Value: 769.23

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Copper	100	1.00E+00	5.00E+04	5.00E+06
Lead	100	1.00E+00	5.00E+01	5.00E+03

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 5 Tank Bottom

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Cyanide	100	4.00E-01	5.00E-01	2.00E+01
Manganese	10000	1.00E+00	5.00E-01	5.00E+03
Selenium	100	1.00E+00	5.00E+03	5.00E+05
Silver	100	1.00E+00	5.00E+01	5.00E+03
Zinc	10	1.00E+00	5.00E+02	5.00E+03

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 6 Tank Bottom (b) (6)

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Pyrene	100	1.00E+00	5.00E+01	5.00E+03

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 7 Unvegetated Area

Source Hazardous Waste Quantity Value: 0.29

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Copper	100	1.00E+00	5.00E+04	5.00E+06
Lead	100	1.00E+00	5.00E+01	5.00E+03

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 8 (b) (6) Property

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Benzo(g,h,i)perylene	0	1.00E+00	5.00E+04	0.00E+00
Chrysene	10	1.00E+00	5.00E+02	5.00E+03
Lead	0	1.00E+00	5.00E+01	0.00E+00
Mercury	10000	1.00E+00	5.00E+04	5.00E+08
Phenanthrene	0	1.00E+00	5.00E+01	0.00E+00
Pyrene	100	1.00E+00	5.00E+01	5.00E+03
Zinc	10	1.00E+00	5.00E+02	5.00E+03

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 9 (b) Property

Source Hazardous Waste Quantity Value: 0.66

Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
Acetone	10	4.00E-01	5.00E-01	2.00E+00

PREScore 4.0
SW PATHWAY: OVERLAND/FLOOD HUMAN FOOD CHAIN THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Hazardous Substances Found in an Observed Release

Sample No.	Observed Release Hazardous Substance	Toxicity Value	Persistence Value	Bio- accum. Value	Toxicity/ Persistence/ Bioaccum. Value
1	Copper	100	1.00E+00	5.00E+04	5.00E+06
2	Copper	100	1.00E+00	5.00E+04	5.00E+06

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
Wilcox Oil Company - 03/27/97

Toxicity/Persistence/Bioaccumulation Value from Source Hazardous Substances:	5.00E+08
Toxicity/Persistence/Bioaccumulation Value from Observed Release Hazardous Substances:	0.00E+00
Toxicity/Persistence/Bioaccumulation Factor:	5.00E+08
Sum of Source Hazardous Waste Quantity Values:	1.58E+04
Hazardous Waste Quantity Factor:	10000
Waste Characteristics Factor Category:	1000

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
Wilcox Oil Company - 03/27/97

Level I Concentrations

- N/A and/or data not specified

Level II Concentrations

Sample ID: SED-09

Sample Medium: Sediment

Location: 0.00 miles

Hazardous Substance	Hazardous Substance Concentration	FDAAL Benchmark Concentration	Units
Copper	1.5E+03	N.A.	ppb

Documentation for SED-09:

Sediment sample SED-09 was collected at probable point of entry (PPE) 3 on 19 November 1996. Sample results indicate that copper was detected at greater than 3 times the maximum background concentration. This constituent was also detected in on-site sources at concentrations significantly above background levels.

References: 24

Sample ID: SED-10

Sample Medium: Sediment

Location: 0.60 miles

Hazardous Substance	Hazardous Substance Concentration	FDAAL Benchmark Concentration	Units
Copper	1.9E+03	N.A.	ppb

Documentation for SED-10:

Sediment sample SED-10 was collected approximately 0.6 mile downstream of PPE-3 on 19 November 1996.

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
Wilcox Oil Company - 03/27/97

References: 24

Most Distant Level I Sample

- N/A and/or data not specified

Most Distant Level II Sample

Sample ID: SED-10

Distance from the Probable Point of Entry: 0.60 miles

Documentation for SED-10:

Sediment sample SED-10 was collected approximately 0.6 mile downstream of PPE-3 on 19 November 1996.

References: 24

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
Wilcox Oil Company - 03/27/97

Level I Concentrations

Fishery	Annual Production (pounds)	Human Food Chain Population Value
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- N/A and/or data not specified

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Sum of Human Food Chain Population Values: 0.00E+00

Level I Concentrations Factor: 0.00E+00

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
Wilcox Oil Company - 03/27/97

Level II Concentrations

Fishery	Annual Production (pounds)	Human Food Chain Population Value
1 Sand Creek	1.0	3.00E-02

Sum of Human Food Chain Population Values: 3.00E-02

Level II Concentrations Factor: 3.00E-02

Documentation for Sand Creek Fishery:

According to a representative with the Oklahoma Fish and Wildlife, limited fishing occurs from private lands in Sand Creek. The quantity of fish harvested is not known and is conservatively estimated to be at least one pound of fish per year.

References: 21, 24

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT HUMAN FOOD CHAIN THREAT TARGETS
 Wilcox Oil Company - 03/27/97

Potential Contamination

Fishery	Annual Production (pounds)	Type of Surface Water Body	Average Annual Flow (cfs)	Pop. Value (Pi)	Dilution Weight (Di)	Pi*Di
2 Little Deep Fork	1.0	River	400	0.0	1.00E-02	3.00E-04

=====

Sum of (Pi*Di): 3.00E-04

Potential Human Food Chain Contamination Factor: 3.00E-05

Documentation for Little Deep Fork Fishery:

According to a representative with Oklahoma Fish and Wildlife, limited fishing from private lands occurs in the Little Deep Fork River. The quantity harvested is not known and is conservatively estimated to be at least 1 pound of fish per year.

References: 21, 24

Food Chain Individual

Location of Nearest Fishery: Sand Creek
 Distance from the Probable Point of Entry: 0.00 miles
 Type of Surface Water Body: River
 Dilution Weight: 0.1000000
 Level of Contamination: Level II

Food Chain Individual Factor: 45.00

Documentation for Sand Creek:

Segment length was determined by measuring from a topographic map (Reference 2). Estimated average flow rate was estimated from hydrologic data for streams in the watershed (Reference 1).

References: 1, 2

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 1 Pond 1

Source Hazardous Waste Quantity Value: 1923.08

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Pyrene	10000	1.00E+00	5.00E+01	5.00E+05
Toluene	100	4.00E-01	5.00E+01	2.00E+03
Xylene, m-	100	4.00E-01	5.00E+02	2.00E+04

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 2 Pond 2

Source Hazardous Waste Quantity Value: 7692.31

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Aluminum	100	1.00E+00	5.00E+01	5.00E+03
Antimony	100	1.00E+00	5.00E+00	5.00E+02
Arsenic	100	1.00E+00	5.00E+02	5.00E+04
Barium	1	1.00E+00	5.00E-01	5.00E-01
Beryllium	0	1.00E+00	5.00E+01	0.00E+00
Copper	100	1.00E+00	5.00E+04	5.00E+06
Cyanide	1000	4.00E-01	5.00E-01	2.00E+02
Lead	1000	1.00E+00	5.00E+03	5.00E+06
Magnesium	0	1.00E+00	5.00E-01	0.00E+00
Manganese	0	1.00E+00	5.00E+04	0.00E+00
Silver	1000	1.00E+00	5.00E+01	5.00E+04
Vanadium	0	1.00E+00	5.00E-01	0.00E+00
Zinc	10	1.00E+00	5.00E+02	5.00E+03

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 3 Pit

Source Hazardous Waste Quantity Value: 5437.38

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Acetone	100	4.00E-01	5.00E-01	2.00E+01
Arsenic	100	1.00E+00	5.00E+02	5.00E+04
Copper	100	1.00E+00	5.00E+04	5.00E+06
Lead	1000	1.00E+00	5.00E+03	5.00E+06
Mercury	10000	1.00E+00	5.00E+04	5.00E+08
Methylnaphthalene, 2-	1000	4.00E-01	5.00E+03	2.00E+06
Phenanthrene	10000	1.00E+00	5.00E+03	5.00E+07
Selenium	1000	1.00E+00	5.00E+03	5.00E+06
Silver	1000	1.00E+00	5.00E+01	5.00E+04
Xylene, m-	100	4.00E-01	5.00E+02	2.00E+04

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 4 (b) Pond

Source Hazardous Waste Quantity Value: 769.23

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Copper	100	1.00E+00	5.00E+04	5.00E+06
Lead	1000	1.00E+00	5.00E+03	5.00E+06

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 5 Tank Bottom

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Cyanide	1000	4.00E-01	5.00E-01	2.00E+02
Manganese	0	1.00E+00	5.00E+04	0.00E+00
Selenium	1000	1.00E+00	5.00E+03	5.00E+06
Silver	1000	1.00E+00	5.00E+01	5.00E+04
Zinc	10	1.00E+00	5.00E+02	5.00E+03

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 6 Tank Bottom (b) (6)

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Pyrene	10000	1.00E+00	5.00E+01	5.00E+05

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 7 Unvegetated Area

Source Hazardous Waste Quantity Value: 0.29

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Copper	100	1.00E+00	5.00E+04	5.00E+06
Lead	1000	1.00E+00	5.00E+03	5.00E+06

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 8 (b) Property

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Benzo(g,h,i)perylene	0	1.00E+00	5.00E+04	0.00E+00
Chrysene	1000	1.00E+00	5.00E+03	5.00E+06
Lead	1000	1.00E+00	5.00E+03	5.00E+06
Mercury	10000	1.00E+00	5.00E+04	5.00E+08
Phenanthrene	10000	1.00E+00	5.00E+03	5.00E+07
Pyrene	10000	1.00E+00	5.00E+01	5.00E+05
Zinc	10	1.00E+00	5.00E+02	5.00E+03

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 9 (b) Property

Source Hazardous Waste Quantity Value: 0.66

Hazardous Substance	Eco- toxicity Value	Persistence Value	Bio- accum. Value	Ecotoxicity/ Persistence/ Bioaccum. Value
Acetone	100	4.00E-01	5.00E-01	2.00E+01

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD ENVIRONMENTAL THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Hazardous Substances Found in an Observed Release

Sample No.	Observed Release Hazardous Substance	Eco-toxicity Value	Persistence Value	Bio-accum. Value	Ecotoxicity/Persistence/Bioaccum. Value
1	Copper	100	1.00E+00	5.00E+04	5.00E+06
2	Copper	100	1.00E+00	5.00E+04	5.00E+06

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
Wilcox Oil Company - 03/27/97

Ecotoxicity/Persistence/Bioaccumulation Value from Source Hazardous Substances:	5.00E+08
Ecotoxicity/Persistence/Bioaccumulation Value from Observed Release Hazardous Substances:	5.00E+06
Ecotoxicity/Persistence/Bioaccumulation Factor:	5.00E+08
Sum of Source Hazardous Waste Quantity Values:	1.58E+04
Hazardous Waste Quantity Factor:	10000
Waste Characteristics Factor Category:	1000

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
Wilcox Oil Company - 03/27/97

Level I Concentrations

- N/A and/or data not specified

Level II Concentrations

Sample ID: SED-09

Sample Medium: Sediment

Location: 0.00 miles

Hazardous Substance	Hazardous Substance Concentration	AWQC Benchmarks Concentrations		Units
		FRESH	SALT	
Copper	1.5E+03		N.A.	ppb

Documentation for SED-09:

Sediment sample SED-09 was collected at probable point of entry (PPE) 3 on 19 November 1996. Sample results indicate that copper was detected at greater than 3 times the maximum background concentration. This constituent was also detected in on-site sources at concentrations significantly above background levels.

References: 24

Sample ID: SED-10

Sample Medium: Sediment

Location: 0.60 miles

Hazardous Substance	Hazardous Substance Concentration	AWQC Benchmarks Concentrations		Units
		FRESH	SALT	
Copper	1.9E+03		N.A.	ppb

Documentation for SED-10:

Sediment sample SED-10 was collected approximately 0.6 mile downstream of PPE-3 on 19 November 1996.

PREScore 4.0
SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
Wilcox Oil Company - 03/27/97

References: 24

Most Distant Level I Sample

- N/A and/or data not specified

Most Distant Level II Sample

Sample ID: SED-10

Distance from the Probable Point of Entry: 0.60 miles

Documentation for SED-10:

Sediment sample SED-10 was collected approximately 0.6 mile downstream of PPE-3 on 19 November 1996.

References: 24

PREScore 4.0
 SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
 Wilcox Oil Company - 03/27/97

Level I Concentrations

Sensitive Environment	Distance from Probable Point of Entry to Sensitive Env. (miles)	Sensitive Environment Value
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- N/A and/or data not specified

Sum of Sensitive Environments Values:	0
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Wetlands

Wetland	Distance from Probable Point of Entry to Wetland (miles)	Wetlands Frontage (miles)
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- N/A and/or data not specified

Total Wetlands Frontage:	0.00 Miles	Total Wetlands Value:	0
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Sum of Sensitive Environments Value + Wetlands Value: 0.00E+00

Level I Concentrations Factor: 0.00E+00

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
 Wilcox Oil Company - 03/27/97

Level II Concentrations

Sensitive Environment	Distance from Probable Point of Entry to Sensitive Env. (miles)	Sensitive Environment Value
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- N/A and/or data not specified

Sum of Sensitive Environments Values:	0
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Wetlands

Wetland	Distance from Probable Point of Entry to Wetland (miles)	Wetlands Frontage (miles)
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- N/A and/or data not specified

Total Wetlands Frontage:	0.00 Miles	Total Wetlands Value:	0
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Sum of Sensitive Environments Value + Wetlands Value: 0.00E+00

Level II Concentrations Factor: 0.00E+00

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
Wilcox Oil Company - 03/27/97

Potential ContaminationSensitive Environments

Type of Surface Water Body	Sensitive Environment	Sensitive Environment Value
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Wetlands

Type of Surface Water Body	Sensitive Environment	Wetlands Frontage	Wetlands Value
River	1 Wetlands	8.75	250

PREScore 4.0

SW PATHWAY: OVERLAND FLOW/FLOOD COMPONENT ENVIRONMENTAL THREAT TARGETS
Wilcox Oil Company - 03/27/97

Type of Surface Water Body	Sum of Sens. Environment Values(Sj)	Sum of Wetland Frontage Values(Wj)	Dilution Weight (Dj)	Dj(Wj+Sj)
Small to Moderate Stream	0	250	1.00E-01	2.50E+01

Sum of Dj(Wj+Sj):	2.50E+01
Sum of Dj(Wj+Sj)/10:	2.50E+00

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Potential Contamination Sensitive Environment Factor: 3.00E+00

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT LIKELIHOOD OF EXPOSURE
Wilcox Oil Company - 03/27/97

Likelihood of Exposure

No.	Source ID	Level of Contamination
1	Pond 1	Level II
2	Pond 2	Level I
3	Pit	Level I
4	(b) Pond	Level II
5	Tank Bottom	Level II
6	Tank Bottom (b) (6)	Level II
7	Unvegetated Area	Level II
8	(b) (6) Property	Level II
9	Property	Level II

Likelihood of Exposure Factor: 550

Documentation for Area of Contamination, Source Pond 1:

According to HRS guidance, if observed contamination is detected in a source (with the exception of contaminated soil), the entire source area should be used. The source size was estimated from an aerial photo.

References: 6, 24

Documentation for Area of Contamination, Source Pond 2:

See documentation for Source 1.

References:

Documentation for Area of Contamination, Source Pit:

See documentation for Source 1.

References:

Documentation for Area of Contamination, Source (b) Pond:

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT LIKELIHOOD OF EXPOSURE
Wilcox Oil Company - 03/27/97

See documentation for Source 1.

References:

Documentation for Area of Contamination, Source Tank Bottom:

See documentation for Source 1.

References:

Documentation for Area of Contamination, Source Tank Bottom (b) (6):

See documentation for Source 1.

References:

Documentation for Area of Contamination, Source Unvegetated Area:

See documentation for Source 1.

References:

Documentation for Area of Contamination, Source (b) Property:

The area of contaminated soils cannot adequately be determined by one sample; therefore, the area is conservatively estimated to be at least 100 square feet.

References: 24

Documentation for Area of Contamination, Source (b) Property:

See documentation for Source 1.

References:

Source Hazardous Substance	Depth	Concent.	Cancer	RFD	Units
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PREScore 4.0

SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT LIKELIHOOD OF EXPOSURE
Wilcox Oil Company - 03/27/97

No.		(ft.)				
1	Pyrene	< 2	2.3E+02	0.0E+00	1.7E+04	ppm
1	Toluene	< 2	2.7E+02	0.0E+00	1.2E+05	ppm
1	Xylene, m-	< 2	2.8E+02	0.0E+00	1.2E+06	ppm
2	Aluminum	< 2	2.2E+04	0.0E+00	0.0E+00	ppm
2	Antimony	< 2	7.7E+00	0.0E+00	2.3E+02	ppm
2	Arsenic	< 2	6.5E+00	3.3E-01	1.7E+02	ppm
2	Barium	< 2	1.9E+02	0.0E+00	4.1E+04	ppm
2	Beryllium	< 2	1.2E+00	1.4E-01	2.9E+03	ppm
2	Copper	< 2	4.2E+01	0.0E+00	0.0E+00	ppm
2	Cyanide	< 2	2.0E+00	0.0E+00	1.2E+04	ppm
2	Lead	< 2	4.7E+04	0.0E+00	0.0E+00	ppm
2	Magnesium	< 2	5.1E+03	0.0E+00	0.0E+00	ppm
2	Manganese	< 2	7.0E+02	0.0E+00	2.9E+03	ppm
2	Silver	< 2	2.0E+00	0.0E+00	2.9E+03	ppm
2	Vanadium	< 2	3.8E+01	0.0E+00	4.1E+03	ppm
2	Zinc	< 2	1.3E+02	0.0E+00	1.7E+05	ppm
3	Acetone	< 2	2.2E+00	0.0E+00	5.8E+04	ppm
3	Arsenic	< 2	8.7E+00	3.3E-01	1.7E+02	ppm
3	Copper	< 2	1.0E+02	0.0E+00	0.0E+00	ppm
3	Lead	< 2	3.7E+03	0.0E+00	0.0E+00	ppm
3	Mercury	< 2	1.1E-01	0.0E+00	1.7E+02	ppm
3	Methylnaphthalene, 2-	< 2	1.4E+04	0.0E+00	0.0E+00	ppm
3	Phenanthrene	< 2	5.2E+02	0.0E+00	0.0E+00	ppm
3	Selenium	< 2	8.4E-01	0.0E+00	2.9E+03	ppm
3	Silver	< 2	6.7E-01	0.0E+00	2.9E+03	ppm
3	Xylene, m-	< 2	4.5E-01	0.0E+00	1.2E+06	ppm
4	Copper	< 2	2.9E+00	0.0E+00	0.0E+00	ppm
4	Lead	< 2	5.4E+01	0.0E+00	0.0E+00	ppm
5	Cyanide	< 2	9.5E-01	0.0E+00	1.2E+04	ppm
5	Manganese	< 2	9.4E+02	0.0E+00	2.9E+03	ppm
5	Selenium	< 2	4.7E-01	0.0E+00	2.9E+03	ppm
5	Silver	< 2	9.0E-01	0.0E+00	2.9E+03	ppm
5	Zinc	< 2	1.6E+02	0.0E+00	1.7E+05	ppm
6	Pyrene	< 2	5.4E+01	0.0E+00	1.7E+04	ppm
7	Copper	< 2	1.3E+02	0.0E+00	0.0E+00	ppm
7	Lead	< 2	5.5E+04	0.0E+00	0.0E+00	ppm
8	Benzo(g,h,i)perylene	< 2	4.4E-01	0.0E+00	0.0E+00	ppm
8	Chrysene	< 2	6.9E-01	0.0E+00	0.0E+00	ppm
8	Lead	< 2	3.7E+02	0.0E+00	0.0E+00	ppm
8	Mercury	< 2	1.8E-01	0.0E+00	1.7E+02	ppm
8	Phenanthrene	< 2	7.9E-01	0.0E+00	0.0E+00	ppm
8	Pyrene	< 2	5.6E-01	0.0E+00	1.7E+04	ppm
8	Zinc	< 2	1.3E+02	0.0E+00	1.7E+05	ppm
9	Acetone	< 2	4.8E-02	0.0E+00	5.8E+04	ppm

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT LIKELIHOOD OF EXPOSURE
Wilcox Oil Company - 03/27/97

Documentation for Source Pond 1, Contaminants:

Two high concentration waste samples (WS-01 and WS-02) were collected from different locations within Pond 1 on 20 November 1996.

References: 24

Documentation for Source Pond 2, Contaminants:

One high concentration waste sample (WS-04) was collected from Pond 2 on 20 November 1996.

References: 24

Documentation for Source Pit, Contaminants:

Two high concentration waste samples (WS-05 and WS-06) were collected from the Pit on 20 November 1996. Waste sample WS-06 is a field duplicate of WS-05, and was collected for QA/QC purposes.

References: 24

Documentation for Source (b) Pond, Contaminants:

One sediment sample (SED-05) was collected from the (b) (6) on 19 November 1996.

References: 24

Documentation for Source Tank Bottom, Contaminants:

One high concentration waste sample (WS-08) was collected from the tank bottom area on 20 November 1996.

References: 24

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT LIKELIHOOD OF EXPOSURE
Wilcox Oil Company - 03/27/97

Documentation for Source Tank Bottom (b) (6), Contaminants:

Waste sample WS-03 was collected from the tank bottom area located adjacent to the (b) residence on 20 November 1996.

References: 24

Documentation for Source Unvegetated Area, Contaminants:

One soil sample (SS-06) was collected from the unvegetated area on 18 November 1996.

References: 24

Documentation for Source (b) Property, Contaminants:

Soil sample SS-05 was collected from the (b) (6) yard on 18 November 1996.

References: 24

Documentation for Source (b) Property, Contaminants:

Two soil samples (SS-07 and SS-08) were collected from the (b) yard on 19 November 1996. Soil sample SS-08 is a field duplicate of SS-07.

References: 24

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 1 Pond 1

Source Hazardous Waste Quantity Value: 1923.08

Hazardous Substance	Toxicity Value
------------------------	-------------------

Pyrene	100
Toluene	10
Xylene, m-	1

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 2 Pond 2

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
Aluminum	0
Antimony	10000
Arsenic	10000
Barium	10
Beryllium	10000
Copper	0
Cyanide	100
Lead	0
Magnesium	0
Manganese	10000
Silver	100
Vanadium	100
Zinc	10

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 3 Pit

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
Acetone	10
Arsenic	10000
Copper	0
Lead	0
Mercury	10000
Methylnaphthalene, 2-	0
Phenanthrene	0
Selenium	100
Silver	100
Xylene, m-	1

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 4 (b) Pond

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
Copper	0
Lead	0

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 5 Tank Bottom

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Toxicity Value
Cyanide	100
Manganese	10000
Selenium	100
Silver	100
Zinc	10

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 6 Tank Bottom (b) (6)

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Toxicity Value
------------------------	-------------------

Pyrene	100
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PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 7 Unvegetated Area

Source Hazardous Waste Quantity Value: 0.29

Hazardous Substance	Toxicity Value
------------------------	-------------------

Copper	0
Lead	0

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 8 (b) Property

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
Benzo(g,h,i)perylene	0
Chrysene	10
Lead	0
Mercury	10000
Phenanthrene	0
Pyrene	100
Zinc	10

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 9 (b) Property

Source Hazardous Waste Quantity Value: 0.66

Hazardous Substance	Toxicity Value
------------------------	-------------------

Acetone	10
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PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Toxicity Factor:	1.00E+04
Sum of Source Hazardous Waste Quantity Values:	1.92E+03
Hazardous Waste Quantity Factor:	100
Waste Characteristics Factor Category:	32

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT TARGETS
Wilcox Oil Company - 03/27/97

Targets

Level I Population: 0.0 Value: 0.00

Documentation for Level I Population:

No Level I residential population was established.

References:

Level II Population: 5.0 Value: 5.00

Documentation for Level II Population:

A total of 5 resident individuals were identified based on sampling results of samples collected within two yards (the (b) and (b) yards). All samples were collected within 200 feet of the residence (Reference 24). Two people live in the (b)(6) residence (Reference 9) and (b) people live in the (b) residence (Reference 3).

References: 3, 9, 24

Workers: 0.0 Value: 0.00

Documentation for Workers:

No workplaces are located at the Wilcox site or within 200 feet of observed contamination.

References: 1

Resident Individual: Level II Value: 45.00

Resources: NO Value: 0.00

PREScore 4.0
SOIL EXPOSURE PATHWAY RESIDENT POPULATION THREAT TARGETS
Wilcox Oil Company - 03/27/97

Documentation for Resources:

No resources identified.

References: 1

Terrestrial Sensitive Environment	Value
<hr/>	
- N/A and/or data not specified	

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Terrestrial Sensitive Environments Factor: 0.00

PREScore 4.0
 SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT LIKELIHOOD OF
 EXPOSURE
 Wilcox Oil Company - 03/27/97

Likelihood of Exposure

No. Source ID	Level of Contamination	Attractiveness/ Accessibility	Area of Contam. (sq. feet)
1 Pond 1	Level II	5	25000
2 Pond 2	Level I	5	100000
3 Pit	Level I	5	70686
4 (b) (6) Pond	Level II	5	10000
5 Tank Bottom	Level II	5	12272
6 Tank Bottom (b) (6)	Level II	5	12272
7 Unvegetated Area	Level II	5	10000
8 (b) (6) Property	Level II	5	100
9 (b) (6) Property	Level II	5	22500

Highest Attractiveness/Accessibility Value: 5
 Sum of Eligible Areas Of Contamination (sq. feet): 262830
 Area of Contamination Value: 60

Likelihood of Exposure Factor Category: 5

Documentation for Attractiveness/Accessibility, Source Pond 1:

The site (and therefore the sources) is surrounded by fences that correspond to property divisions.

References: 24

Documentation for Attractiveness/Accessibility, Source Pond 2:

See documentation for Source 1.

References:

Documentation for Attractiveness/Accessibility, Source Pit:

See documentation for Source 1.

References:

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT LIKELIHOOD OF
EXPOSURE
Wilcox Oil Company - 03/27/97

Documentation for Attractiveness/Accessibility, Source (b) (6) Pond:

See documentation for Source 1.

References:

Documentation for Attractiveness/Accessibility, Source Tank Bottom:

The source occurs on fenced, private land that is currently not being used.

References: 24

Documentation for Attractiveness/Accessibility, Source Tank Bottom (b) (6):

The source occurs on private, fenced property.

References: 24

Documentation for Attractiveness/Accessibility, Source Unvegetated Area:

The source occurs on private, fenced property.

References: 24

Documentation for Attractiveness/Accessibility, Source (b) Property:

The source occurs on fenced, private property.

References: 24

Documentation for Attractiveness/Accessibility, Source (b) Property:

The source occurs in a private, fenced yard.

PREScore 4.0
 SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT LIKELIHOOD OF
 EXPOSURE
 Wilcox Oil Company - 03/27/97

References: 24

Source No.	Hazardous Substance	Depth (ft.)	Concent.	Cancer	RFD	Units
1	Pyrene	< 2	2.3E+02	0.0E+00	1.7E+04	ppm
1	Toluene	< 2	2.7E+02	0.0E+00	1.2E+05	ppm
1	Xylene, m-	< 2	2.8E+02	0.0E+00	1.2E+06	ppm
2	Aluminum	< 2	2.2E+04	0.0E+00	0.0E+00	ppm
2	Antimony	< 2	7.7E+00	0.0E+00	2.3E+02	ppm
2	Arsenic	< 2	6.5E+00	3.3E-01	1.7E+02	ppm
2	Barium	< 2	1.9E+02	0.0E+00	4.1E+04	ppm
2	Beryllium	< 2	1.2E+00	1.4E-01	2.9E+03	ppm
2	Copper	< 2	4.2E+01	0.0E+00	0.0E+00	ppm
2	Cyanide	< 2	2.0E+00	0.0E+00	1.2E+04	ppm
2	Lead	< 2	4.7E+04	0.0E+00	0.0E+00	ppm
2	Magnesium	< 2	5.1E+03	0.0E+00	0.0E+00	ppm
2	Manganese	< 2	7.0E+02	0.0E+00	2.9E+03	ppm
2	Silver	< 2	2.0E+00	0.0E+00	2.9E+03	ppm
2	Vanadium	< 2	3.8E+01	0.0E+00	4.1E+03	ppm
2	Zinc	< 2	1.3E+02	0.0E+00	1.7E+05	ppm
3	Acetone	< 2	2.2E+00	0.0E+00	5.8E+04	ppm
3	Arsenic	< 2	8.7E+00	3.3E-01	1.7E+02	ppm
3	Copper	< 2	1.0E+02	0.0E+00	0.0E+00	ppm
3	Lead	< 2	3.7E+03	0.0E+00	0.0E+00	ppm
3	Mercury	< 2	1.1E-01	0.0E+00	1.7E+02	ppm
3	Methylnaphthalene, 2-	< 2	1.4E+04	0.0E+00	0.0E+00	ppm
3	Phenanthrene	< 2	5.2E+02	0.0E+00	0.0E+00	ppm
3	Selenium	< 2	8.4E-01	0.0E+00	2.9E+03	ppm
3	Silver	< 2	6.7E-01	0.0E+00	2.9E+03	ppm
3	Xylene, m-	< 2	4.5E-01	0.0E+00	1.2E+06	ppm
4	Copper	< 2	2.9E+00	0.0E+00	0.0E+00	ppm
4	Lead	< 2	5.4E+01	0.0E+00	0.0E+00	ppm
5	Cyanide	< 2	9.5E-01	0.0E+00	1.2E+04	ppm
5	Manganese	< 2	9.4E+02	0.0E+00	2.9E+03	ppm
5	Selenium	< 2	4.7E-01	0.0E+00	2.9E+03	ppm
5	Silver	< 2	9.0E-01	0.0E+00	2.9E+03	ppm
5	Zinc	< 2	1.6E+02	0.0E+00	1.7E+05	ppm
6	Pyrene	< 2	5.4E+01	0.0E+00	1.7E+04	ppm
7	Copper	< 2	1.3E+02	0.0E+00	0.0E+00	ppm
7	Lead	< 2	5.5E+04	0.0E+00	0.0E+00	ppm
8	Benzo(g,h,i)perylene	< 2	4.4E-01	0.0E+00	0.0E+00	ppm
8	Chrysene	< 2	6.9E-01	0.0E+00	0.0E+00	ppm
8	Lead	< 2	3.7E+02	0.0E+00	0.0E+00	ppm
8	Mercury	< 2	1.8E-01	0.0E+00	1.7E+02	ppm
8	Phenanthrene	< 2	7.9E-01	0.0E+00	0.0E+00	ppm

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT LIKELIHOOD OF
EXPOSURE

Wilcox Oil Company - 03/27/97

8	Pyrene	< 2	5.6E-01	0.0E+00	1.7E+04	ppm
8	Zinc	< 2	1.3E+02	0.0E+00	1.7E+05	ppm
9	Acetone	< 2	4.8E-02	0.0E+00	5.8E+04	ppm

Documentation for Source Pond 1, Contaminants:

Two high concentration waste samples (WS-01 and WS-02) were collected from different locations within Pond 1 on 20 November 1996.

References: 24

Documentation for Source Pond 2, Contaminants:

One high concentration waste sample (WS-04) was collected from Pond 2 on 20 November 1996.

References: 24

Documentation for Source Pit, Contaminants:

Two high concentration waste samples (WS-05 and WS-06) were collected from the Pit on 20 November 1996. Waste sample WS-06 is a field duplicate of WS-05, and was collected for QA/QC purposes.

References: 24

Documentation for Source (b) Pond, Contaminants:

One sediment sample (SED-05) was collected from the (b) Pond on 19 November 1996.

References: 24

Documentation for Source Tank Bottom, Contaminants:

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT LIKELIHOOD OF
EXPOSURE
Wilcox Oil Company - 03/27/97

One high concentration waste sample (WS-08) was collected from the tank bottom area on 20 November 1996.

References: 24

Documentation for Source Tank Bottom (b) (6), Contaminants:

Waste sample WS-03 was collected from the tank bottom area located adjacent to the (b) residence on 20 November 1996.

References: 24

Documentation for Source Unvegetated Area, Contaminants:

One soil sample (SS-06) was collected from the unvegetated area on 18 November 1996.

References: 24

Documentation for Source (b) (6) Property, Contaminants:

Soil sample SS-05 was collected from the (b) (6) yard on 18 November 1996.

References: 24

Documentation for Source (b) Property, Contaminants:

Two soil samples (SS-07 and SS-08) were collected from the (b) yard on 19 November 1996. Soil sample SS-08 is a field duplicate of SS-07.

References: 24

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 1 Pond 1

Source Hazardous Waste Quantity Value: 1923.08

Hazardous Substance	Toxicity Value
Pyrene	100
Toluene	10
Xylene, m-	1

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 2 Pond 2

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
Aluminum	0
Antimony	10000
Arsenic	10000
Barium	10
Beryllium	10000
Copper	0
Cyanide	100
Lead	0
Magnesium	0
Manganese	10000
Silver	100
Vanadium	100
Zinc	10

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 3 Pit

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
Acetone	10
Arsenic	10000
Copper	0
Lead	0
Mercury	10000
Methylnaphthalene, 2-	0
Phenanthrene	0
Selenium	100
Silver	100
Xylene, m-	1

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 4 (b) Pond

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
Copper	0
Lead	0

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 5 Tank Bottom

Source Hazardous Waste Quantity Value: 0.36

Hazardous Substance	Toxicity Value
------------------------	-------------------

Cyanide	100
Manganese	10000
Selenium	100
Silver	100
Zinc	10

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 6 Tank Bottom (b) (6)

Source Hazardous Waste Quantity Value: 0.36

Hazardous
Substance

Toxicity
Value

Pyrene

100

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 7 Unvegetated Area

Source Hazardous Waste Quantity Value: 0.29

Hazardous Substance	Toxicity Value
------------------------	-------------------

Copper	0
Lead	0

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 8 (b) Property

Source Hazardous Waste Quantity Value: 0.00

Hazardous Substance	Toxicity Value
------------------------	-------------------

Benzo(g,h,i)perylene	0
Chrysene	10
Lead	0
Mercury	10000
Phenanthrene	0
Pyrene	100
Zinc	10

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: 9 (b) Property

Source Hazardous Waste Quantity Value: 0.66

Hazardous Substance	Toxicity Value
------------------------	-------------------

Acetone	10
---------	----

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT WASTE
CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Toxicity Factor:	1.00E+04
Sum of Source Hazardous Waste Quantity Values:	1.92E+03
Hazardous Waste Quantity Factor:	100
Waste Characteristics Factor Category:	32

PREScore 4.0
SOIL EXPOSURE PATHWAY NEARBY POPULATION THREAT TARGETS
Wilcox Oil Company - 03/27/97

Nearby Individual

Population within 1/4 mile: 57.0

Nearby Individual Value: 0.0

Population Within 1 Mile

Travel Distance Category	Number of People	Value
> 0 to 1/4 mile	57.0	0.1
> 1/4 to 1/2 mile	495.0	0.7
> 1/2 to 1 mile	1836.0	1.0
Population Within 1 Mile Factor:		2.0

Documentation for Population > 0 to 1/4 mile Distance Category:

The population was estimated using the EPA Geographic Exposure Modeling System (GEMS) database, 1990 Census information, and a house count taken during the 1994 PA.

References: 1

Documentation for Population > 1/4 to 1/2 mile Distance Category:

See documentation for above.

References:

Documentation for Population > 1/2 to 1 mile Distance Category:

See documentation for above.

References:

PREScore 4.0
 AIR PATHWAY LIKELIHOOD OF RELEASE
 Wilcox Oil Company - 03/27/97

OBSERVED RELEASE

No. Sample ID	Distance (miles)	Level of Contamination
- N/A and/or data not specified		

=====

Observed Release Factor: 0

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Gas Migration Potential

GAS POTENTIAL TO RELEASE

Source ID	Source Type	Gas Contain. Value (A)	Gas Source Type Value (B)	Gas Migrtn. Potent. Value (C)	Sum (B+C)	Gas Potential to Rel. Value A(B+C)
- N/A and/or data not specified						

Gas Potential to Release Factor: 0

Documentation for Source Type, Source Pond 1:

The source consists of a topographic depression designed to hold liquid and/or sludge wastes.

References: 24

Documentation for Source Type, Source Pond 2:

The source consists of a pond that was historically used to hold liquid wastes.

References: 6, 7

Documentation for Source Type, Source Pit:

The source type "surface impoundment" was selected for the Pit because it is a topographic depression that was designed to hold liquid/sludge wastes.

References: 24

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Documentation for Source Type, Source (b) Pond:

The source type "surface impoundment" was selected because it is a topographic depression that is designed to hold liquid/sludge wastes.

References: 24

Documentation for Source Type, Source Tank Bottom:

The source consists of an area of soils contaminated with tank bottom material.

References: 24

Documentation for Source Type, Source Tank Bottom (b) (6):

The source consists of an area of soils contaminated with tank bottom material (waste source sample, WS-03).

References: 24

Documentation for Source Type, Source Unvegetated Area:

The source consists of an area of bare, unvegetated soils.

References: 24

Documentation for Source Type, Source (b) Property:

The source consists of contaminated soils documented by a soil sample in the (b) (6) yard.

References: 24

Documentation for Source Type, Source (b) Property:

The source consists of contaminated soils documented by a soil

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

sample collected from the (b) yard.

References: 24

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Pond 1

Gaseous Hazardous Substance	Hazardous Substance Gas Migration Potential Value
Pyrene	6
Toluene	17
Xylene, m-	17

Average of Gas Migration Potential Value for 3 Hazardous Substances: 13.333

=====

Gas Migration Potential Value From Table 6-7: 11

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Pond 2

Gaseous Hazardous Substance

Hazardous Substance Gas
Migration Potential Value

Average of Gas Migration Potential Value for 3 Hazardous Substances: 0.000

Gas Migration Potential Value From Table 6-7: 0

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Pit

Gaseous Hazardous Substance	Hazardous Substance Gas Migration Potential Value
Acetone	17
Mercury	6
Methylnaphthalene, 2-	11
Phenanthrene	11
Xylene, m-	17

Average of Gas Migration Potential Value for 3 Hazardous Substances: 15.000

=====

Gas Migration Potential Value From Table 6-7: 17

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: (b) Pond

Gaseous (6) Hazardous Substance

Hazardous Substance Gas
Migration Potential Value

Average of Gas Migration Potential Value for 3 Hazardous Substances: 0.000

Gas Migration Potential Value From Table 6-7: 0

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Tank Bottom

Gaseous Hazardous Substance

Hazardous Substance Gas
Migration Potential Value

Average of Gas Migration Potential Value for 3 Hazardous Substances: 0.000

Gas Migration Potential Value From Table 6-7: 0

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Tank Bottom (b)

Gaseous Hazardous Substance

Hazardous Substance Gas
Migration Potential Value

Pyrene

6

Average of Gas Migration Potential Value for 3 Hazardous Substances: 6.000

Gas Migration Potential Value From Table 6-7:

6

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Unvegetated Area

Gaseous Hazardous Substance

Hazardous Substance Gas
Migration Potential Value

Average of Gas Migration Potential Value for 3 Hazardous Substances: 0.000

=====

Gas Migration Potential Value From Table 6-7: 0

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: (b) Property

(6)
Gaseous Hazardous Substance Hazardous Substance Gas
Migration Potential Value

Chrysene	6
Mercury	6
Phenanthrene	11
Pyrene	6

Average of Gas Migration Potential Value for 3 Hazardous Substances: 7.667
=====

Gas Migration Potential Value From Table 6-7: 11

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: (b) Property

Gaseous (6) Hazardous Substance

Hazardous Substance Gas
Migration Potential Value

Acetone

17

Average of Gas Migration Potential Value for 3 Hazardous Substances: 17.000
=====

Gas Migration Potential Value From Table 6-7: 17

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Particulate Migration Potential

PARTICULATE POTENTIAL TO RELEASE

Source ID	Source Type	Partic. Contain. Value (A)	Partic. Source Type Value (B)	Partic. Migrtn. Potent. Value (C)	Sum (B+C)	Partic. Potential to Rel. Value A(B+C)
-----------	-------------	----------------------------	-------------------------------	-----------------------------------	-----------	--

- N/A and/or data not specified

Particulate Potential to Release Factor: 0

Documentation for Source Type, Source Pond 1:

The source consists of a topographic depression designed to hold liquid and/or sludge wastes.

References: 24

Documentation for Source Type, Source Pond 2:

The source consists of a pond that was historically used to hold liquid wastes.

References: 6, 7

Documentation for Source Type, Source Pit:

The source type "surface impoundment" was selected for the Pit because it is a topographic depression that was designed to hold liquid/sludge wastes.

References: 24

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Documentation for Source Type, Source (b) (6) Pond:

The source type "surface impoundment" was selected because it is a topographic depression that is designed to hold liquid/sludge wastes.

References: 24

Documentation for Source Type, Source Tank Bottom:

The source consists of an area of soils contaminated with tank bottom material.

References: 24

Documentation for Source Type, Source Tank Bottom (b) (6):

The source consists of an area of soils contaminated with tank bottom material (waste source sample, WS-03).

References: 24

Documentation for Source Type, Source Unvegetated Area:

The source consists of an area of bare, unvegetated soils.

References: 24

Documentation for Source Type, Source (b) Property:

The source consists of contaminated soils documented by a soil sample in the (b) (6) yard.

References: 24

Documentation for Source Type, Source (b) Property:

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

The source consists of contaminated soils documented by a soil sample collected from the (b) yard.

References: 24

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Pond 1

Particulate Hazardous Substance

Pyrene

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Pond 2

Particulate Hazardous Substance

Aluminum
Antimony
Arsenic
Barium
Beryllium
Copper
Cyanide
Lead
Magnesium
Manganese
Silver
Vanadium
Zinc

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Pit

Particulate Hazardous Substance

Arsenic

Copper

Lead

Mercury

Methylnaphthalene, 2-

Phenanthrene

Selenium

Silver

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: (b) (6) Pond

Particulate Hazardous Substance

Copper

Lead

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Tank Bottom

Particulate Hazardous Substance

Cyanide
Manganese
Selenium
Silver
Zinc

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Tank Bottom (b) (6)

Particulate Hazardous Substance

Pyrene

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: Unvegetated Area

Particulate Hazardous Substance

Copper

Lead

PREScore 4.0
AIR PATHWAY LIKELIHOOD OF RELEASE
Wilcox Oil Company - 03/27/97

Source: (b) (6) Property

Particulate Hazardous Substance

Benzo(g,h,i)perylene
Chrysene
Lead
Mercury
Phenanthrene
Pyrene
Zinc

PREScore 4.0
AIR PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Source: (b) Property

(6)
Particulate Hazardous Substance

PREScore 4.0
AIR PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Hazardous Substance	Toxicity Value	Gas Mobility Value	Particulate Mobility Value	Toxicity/ Mobility Value
---------------------	-------------------	--------------------------	----------------------------------	--------------------------------

PREScore 4.0
AIR PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Hazardous Substances Found in an Observed Release

Sample ID	Observed Release Hazardous Substance	Particulate Toxicity/ Mobility Value	Gas Toxicity/ Mobility Value
-----------	---	--	------------------------------------

- N/A and/or data not specified

- N/A and/or data not specified

PREScore 4.0
AIR PATHWAY WASTE CHARACTERISTICS
Wilcox Oil Company - 03/27/97

Toxicity/Mobility Value from Observed Release Hazardous Substances:	0.00E+00
---	----------

Toxicity/Mobility Factor:	0.00E+00
---------------------------	----------

Sum of Source Hazardous Waste Quantity Values:	0.00E+00
--	----------

Hazardous Waste Quantity Factor:	0
----------------------------------	---

Waste Characteristics Factor Category:	0
--	---

AIR PATHWAY TARGETS

Actual Contamination

- N/A and/or data not specified

Potential Contamination

Population

Value

[illegible]

PREScore 4.0
%2d %-20.20s %5.3lf %-10.10s
Wilcox Oil Company - 03/27/97

Nearest Individual Factor

Distance in miles: Potentia

- N/A and/or data not specified

Resources

Resource Value: 4.935385869982639780000000000000000000000000e+257

PREScore 4.0
%2d %-20.20s %5.3lf %-10.10s
Wilcox Oil Company - 03/27/97

Actual Contamination, Sensitive Environments

Sensitive Environment	Distance (miles)	Sensitive Environment Value
-----------------------	---------------------	-----------------------------------

- N/A and/or data not specified

Actual Contamination, Wetlands

Distance Category	Wetland Acreage	Wetland Acreage Value
----------------------	--------------------	--------------------------

- N/A and/or data not specified

=====
(Sum of Sensitive Environments + Wetlands Values)

PREScore 4.0
 %2d %-20.20s %5.3lf %-10.10s
 Wilcox Oil Company - 03/27/97

Potential Contamination, Sensitive Environments

Sensitive Environment	Distance (miles)	Sensitive Environment Value	Distance Weight	Weighted Value/10
24940	0.0000	4.935385843404746150000000000000000000000000e+257		
		6.966985983755210970000000000000000000000000e+199		
Sum of Sensitive Environments Weighted Values/10:				0.000

Potential Contamination, Wetlands

Distance Category	Wetland Acreage	Wetland Acreage Value	Distance Weight	Weighted Value/10
----------------------	--------------------	--------------------------	--------------------	----------------------

- N/A and/or data not specified

=====

PREScore 4.0
REFERENCES
Wilcox Oil Company - 03/27/97

- 1 State of Oklahoma, Department of Environmental Quality (ODEQ). 1994. Preliminary Assessment of the Wilcox Oil Company, Bristow, Creek County, Oklahoma. 15 December 1994.
- 2 USGS (U.S. Geological Survey). 1973. Bristow Quadrangle, Oklahoma (7.5-minute series topographic map).
- 3 WESTON. 1996. Field Logbook Notes for the Wilcox Oil Company site. 16 August 1996; 18-20 November 1996.
- 4 Not Used.
- 5 Not Used.
- 6 Ace Aerial Photo Service. Aerial Photographs for portions of Section 29, Township 16 North, Range 9 East: 1956, 1966, 1976, 1985.
- 7 Aerial Oklahoma, Inc. 1995. Aerial Photograph for portions of Section 29, Township 16 North, Range 9 East.
- 8 Not Used.
- 9 Williams, D.G. 1996. Personal communication with (b) (6), property owner.
- 10 Not Used.
- 11 Not Used.
- 12 Not Used.
- 13 Not Used.
- 14 WESTON. 1997. Net Annual Precipitation Calculation. Houston, Texas.
- 15 Not Used.
- 16 Not Used.
- 17 Federal Emergency Management Agency. 1981. Flood Hazard Boundary Map, Creek County, Oklahoma (Unincorporated Area). Community Panel Number 400490 007 A. 19 May 1981.
- 18 U.S. Department of Commerce. 1961. Rainfall Frequency Atlas. 2-year, 24-hour Rainfall for the United States.

PREScore 4.0
REFERENCES
Wilcox Oil Company - 03/27/97

- 19 Not Used.
- 20 Not Used.
- 21 Williams, D.G. 1997. Personal Communication with Mark Ambler, Oklahoma Fish and Wildlife, 26 February 1997.
- 22 U.S. Department of Agriculture, Soil Conservation Service. 1959. Soil Survey for Creek County, Oklahoma. May 1959.
- 23 Not Used.
- 24 WESTON. 1997. Expanded Site Inspection, Wilcox Oil Company, Bristow, Creek County, OK. March 1997.

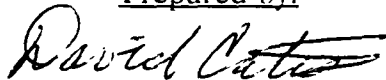
REFERENCE 1

PRELIMINARY ASSESSMENT
of the
WILCOX OIL COMPANY

located in
BRISTOW, CREEK COUNTY, OKLAHOMA

TATE OF OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

Prepared by:



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Approved by:

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December 15, 1994

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I. Introduction

The State of Oklahoma Department of Environmental Quality (DEQ) is tasked by the U.S. Environmental Protection Agency (EPA), as authorized by CERCLA and as amended by SARA, under the Multi-Site Cooperative Agreement (CA# V-00645-01) to conduct a Preliminary Assessment (PA) of the Wilcox Oil Company site, (CERCLIS ID # not yet assigned). The primary purpose of this PA is to assess the immediate or potential threat of wastes at the site that may impact public and environmental health and to collect information sufficient to support a decision regarding the need for further action under CERCLA/SARA. The scope of this investigation includes the review of available information from DEQ and other State agencies' files, a comprehensive target survey, and a site reconnaissance.

II. Site Description, Operational History, and Waste Characteristics

Site Description

The original site of the Wilcox Oil Company refinery is located in the NE/4 NW/4 NW/4 of Section 29-T16N-R9E (IM) Creek County, Oklahoma, along the east side of the St. Louis and San Francisco railroad right of way and is situated about 0.75 miles northeast of the Bristow City Hall (References 1; 2; Figures 1, 2, 3). The railroad extends northeast-southwest through the NW/4 NW/4 of section 29. Another feature of the area is Sand Creek which flows to the southeast across the NW/4 of Section 29. Coordinates of the site are 35° 50' 31.39" north latitude and 96° 23' 02.05" west longitude (Reference 3).

Operations at the oil refinery site began in the 1920's and the property was sold by Wilcox Oil Company on November 1st, 1963 (References 4; 5E; 6J; 6K). It is assumed that the company operated the refinery for all of this 35 to 40 year time period. Most of the equipment and storage tanks which remained on site in 1963 were auctioned and have been salvaged for scrap iron by private land owners (Reference 5E). After conducting the PRP search and the site reconnaissance, it was found that the Wilcox Oil Company actually owned more land than was originally considered to be the site, as indicated by the Sanborn Fire Insurance Map for Bristow (References 2; 6J; 6K; 6M; 7). It was determined that the size of the site should be expanded to include approximately 75 acres north of Sand Creek in the N/2 NW/4 and 40 acres in the NW/4 NE/4 of Section 29.

A tank farm with 50,000 barrel storage tanks and surface impoundments existed on the east 80 acres of the expanded site (NE/4 NW/4 & NW/4 NE/4 of Section 29) (References 2; 5E). Most of the tank farm area is currently owned by Mr. (b) (6) of Bristow, Oklahoma; home address unknown (Reference 5E). It is rural/undeveloped

land just outside the city limits of Bristow Oklahoma, and there are no structures or storage tanks currently on this part of the site (Reference 2). On the north the land is separated from the east-west section line county road by a barbed wire fence which has an unlocked gate. The gate is located at the north quarter corner of Section 29 where a lease road enters the property, trending south along a topographic high. Another entrance to the (b) (6) property is located along the west side where a lease road extends southeast from a private drive which trends south from the north section line road. An area of about 2.5 acres in the northwest corner of the tank farm area is fenced. This is believed to be a gas pipeline compressor station (Reference 5S). A pipeline easement extends to the southeast from this location (Reference 2). It is marked with flagging and identifiable as a cleared path about twenty five feet wide. A south trending creek is located along the eastern portion of the (b) (6) property (Reference 2). The eastern part of the property drains to the south and southeast while surface drainage in the west is to the southwest and south (Reference 2; Figure 1). The eastern 1/4 of the property is heavily wooded (Reference 2). While a tree line is present along the southern fenced property boundary and trees are randomly scattered elsewhere, most of the remaining areas of the property are covered with grasses and brush (Reference 5). The land to the south is cleared of trees and is probably used for agricultural purposes, either farming or for grazing cattle (Reference 2).

The original refinery site, which is located inside the fenced area just east of the railroad right of way, is currently owned by (b) (6) and covers approximately 13 acres (References 1; 6A; 6L; 7). The (b) (6) property, which is completely fenced on all sides with a locked gate entrance on the north side, is located within a rural/underdeveloped setting just northeast of Bristow (Reference 2). The east-west section line road marks the north boundary of the property. The west side borders the railroad right of way. On the east side is a private drive extending south from the section line road. About 400 feet south of the section line road the fence angles southwest from the private drive then turns south after crossing a small creek and continues to Sand Creek. The southern border of the property is marked by the fence's position along the north bank of Sand Creek. The total area is about 18 acres, which is larger than what is described on their deed (13 acres, more or less) due to the fact that the fence extends all the way to Sand Creek (References 2; 5E).

Four storage tanks (12,500 gallons each) and an abundant number of pipe pieces and scrap iron are present on the (b) (6) property (Reference 2). There are several brick structures remaining on the west side near the railroad right of way. One of the old facility structures located on the north side next to the section line road is being used as a residence. Concrete tank, tower and facility foundations are present at numerous places. A small south trending creek is located along the east side of the (b) (6) property. Surface drainage is to the east and south (Reference 2; Figure 1). Trees and dense vegetation are present along the banks of the creeks and on the west side of the property. The remnants of several tanks, which had been salvaged for scrap iron, are

present (References 2, 5E).

The property bordering the railroad right of way on the west is owned by the Bristow First Assembly of God church (Reference 6B). The southern boundary of the church property is Sand Creek. The western and northern boundaries are believed to be the section lines. There are no fences. A gravel drive enters the property from the northeast corner to a gravel parking lot north of the church building itself (Reference 2). The building west of the church is a residence (Reference 5R). South of the church is an unoccupied mobile home which is to be used as a residence (Reference 5R). Two storage sheds are present near the mobile home. The ground is covered with mowed grass except for the parking lot and for trees located along the bank of Sand Creek. The church property drains to the west and south (Reference 2; Figure 1).

There are no schools or day-care centers near the site (References 2; 5R). There are three residences considered to be on site (References 2; 5E; 5Q; 5R). A residential area of Bristow is located just south of the (b) (6) property across Sand Creek (Reference 2). Four residences are located just north of the east-west section line road which marks the northern extent of the refinery site (Reference 2). Activities at the site involve domestic activities associated with the residences; salvaging of scrap iron from the remaining refinery equipment on the (b) (6) property; activities associated with the church; hunting on the (b) (6) property; and occasional dirt work on all the properties (References 2; 5Q; 5R; 5S).

Operational History

The Wilcox Oil Company operated a crude oil refinery from the 1920's to early 1960's (References 4; 6). It was operated as a pilot project from about 1920 to 1928 at 1,000 barrels of oil per day by Riley Petroleum Company (Reference 4). The Sanborn Fire Insurance Map shows the various components of the facility (Reference 7). A modern skimming and cracking plant was constructed in 1929 which had an operating capacity of 4,000 barrels of crude oil per day (BOPD) (Reference 4). The main components of the new system consisted of a skimming plant, cracking unit, and redistillation battery with a vapor recovery system and continuous treating equipment (Reference 4). The crude oil was brought directly from the field, which eliminated storage and handling facilities but resulted in crude with high bottom sediment and water (b. s. & w.) (Reference 4). It is assumed that Wilcox Oil Company expanded operations at some later date since they acquired the former Lorraine Refinery facility west of the railroad and the tank farm area to the east (References 4; 6). Wilcox Oil Company acquired the original site (NE/4 NW/4 NW/4 of Section 29) on October 11, 1928, from (b) (6) (Reference 6J). The company sold the original site plus the expanded areas totaling about 110 acres, more or less, to (b) (6) on November 1, 1963 (Reference 6K). Wilcox Oil Company no longer operates in Oklahoma (Reference 5O). It is believed that this company merged with Tenneco Oil Company in 1967 (References 5O; 6). Tenneco operates in Oklahoma and is "in good standing" with the Secretary of State (Reference

50). (b) (6) acquired the original refinery site from (b) (6) on March 27, 1973 (References 6A; 6L).

DEQ received positive responses to its inquiries concerning access to the site from the current owners who, according to Oklahoma County Assessor's Office, are Messrs. (b) (6) and (b) (6), and the Bristow First Assembly of God church (References 6; 8). An on site reconnaissance was conducted by DEQ on December 16, 1994 (Reference 2). There are no existing complaints regarding the site in the Creek County Health Department files or records from other state institutions including the Corporation Commission, the Water Resources Board, and the Department of Environmental Quality (References 5J; 5K; 5L; 5M; 5N).

Waste Characteristics

The raw crude oil contained high percentages of bottom sediment and water (b. s. & w.), that was separated and represents the initial component of the waste stream at the site. The suspected waste stream components are: b. s. & w. (i.e., tank residues & brine); acid and caustic sludges; lead (sodium plumbite, Na_2PbO_2); coke; elemental sulfur; and possibly solvents (References 2; 4). Waste volumes are estimated to be large, i.e., at 1 % b. s. & w., the 4,000 BOPD refinery capacity would result in a waste stream of 40 barrels per day of waste if operated at capacity. The coke production was reported to be 7 to 8 tons per month which was transported off site by railroad and sold (Reference 4). The sodium plumbite was used as a Doctor solution additive for gasoline odors (Reference 4). Other potential contaminants such as the products (naphtha, gasoline, kerosine, fuel oil, and furnace oil) and raw crude oil are excluded under CERCLA (References 4; 9).

The soil survey classification for the site is oil-waste land which indicates that the area was impacted in 1950 by oil and salt water wastes from oil wells (Reference 10). This classification corresponds to miscellaneous land types which are gullied and eroded and are almost bare of vegetation. Comparison of aerial photos taken in 1941 with one flown in 1991 shows that there is quite a bit more vegetation currently (References 3B; 3E). Several surface impoundments containing oily sludge totaling about 4 acres in area are visible on both photos in the NE/4 NW/4 of Section 29 (References 3; 3B; 3E; Photo 1).

About 6.5 acres of asphalt-like material (presumably tank bottoms) is present within the storage tank retention berms located in the 80 acre tank farm area (References 3; 3F). The original refinery site (the (b) (6) property) contains some refinery equipment in various states of disrepair and several brick structures (References 3; 1; 7). An area barren of vegetation about 2 acres in size (200 by 400 feet) is present in the south central portion of the (b) (6) property (References 3; 3F; Photo 2). Coke and asphalt-like material is scattered over the ground surface in two areas about 1 acre (200 by 200 feet) each in size (References 3; 3F; Photo 3). What appears to be tank bottom sediment and

oily sludge was observed in one remnant tank bottom (Reference 3; Photo 4). This material is presumed to be present in the remaining four tanks on this site and in the bermed areas, totaling about 1 acre in size (Reference 3; 3F). The church's property has several areas, totaling about 5,000 square feet in size that have barren to sparse vegetation (Reference 3). Apparently, some oily waste was discovered on site about 2 feet below ground level when the church installed lateral lines (Reference 5U). Due to the evidence presented above, it will be assumed in this investigation that approximately 15.5 acres of the on site surface has been contaminated with hazardous substances.

III. Pathway and Environmental Hazard Assessment

Groundwater

The Barnsdall Formation outcrops at the Wilcox Oil Company refinery site and potentially receives ground water recharge from downward infiltration of precipitation falling on the ground surface (Reference 11). The Barnsdall Formation is a bedrock aquifer but is not considered to be a Principal Ground Water Resource by the Oklahoma State Department of Health (Reference 11). The site is in close proximity to an alluvial aquifer located less than one half mile to the south (Reference 11).

The alluvial deposits consist of wedge shaped layers of sand, silt, clay, and gravel. These deposits are found along Sand and Little Deep Fork Creeks and range from 0 to 100 feet in thickness (Reference 11). The Barnsdall Formation is approximately 200 feet thick at the site and consists of massive to thin beds of coarse to fine grain sandstone, irregularly interbedded with sandy to silty shale (Reference 11).

There is no indication that the site is located in an area of karst terrain (Reference 11; Figure 1). There are no faults mapped at the site (Reference 11). The soil survey has mapped the site as oil-waste land (Reference 10), indicating contamination at the ground surface. The Stephenville and Darnell fine sandy loam series (sloping) are the soils most likely associated with the site prior to being impacted by oil-field activities (Reference 10). These soils are well drained and are present from shallow to moderate depths (Reference 10). Sandstone outcrops are fairly common (Reference 10). Runoff is slow to moderate and internal drainage is moderate to rapid (Reference 10). The average annual precipitation is 37.19 inches (Reference 10) and the recharge to ground water is estimated to be about 10 per cent of the precipitation (Reference 11); thus, it is 3.7 inches per year.

The upper part of the Barnsdall Formation and the alluvial aquifer are unconfined, with a shallow water table, and are very susceptible to ground water contamination by potential wastes or contaminated soils at the site (Reference 11). Depth to the shallowest water bearing formation is less than 25 feet (Reference 11). However, a depth of sixty feet was reported for the first water saturated sandstone in a domestic water well

located in the SW/4 SW/4 SW/4 of Section 20-T16N-R9E which is less than a quarter mile north of the site (Reference 11). Recharge to the shallow part of the Barnsdall Formation at the site and discharge of ground water to the alluvial aquifer to the south are probable contamination mechanisms occurring at the site (Reference 11). Since shale beds occur within the Barnsdall Formation, recharge to the deeper part of the aquifer is probably restricted (Reference 11). However, pumpage from this zone could cause leakage of ground water from the strata above (Reference 11). Thus, the deep part of the Barnsdall Formation is also susceptible to ground water contamination by potential wastes or contaminated soils at the site. Two abandoned oil exploration wells located less than a quarter mile to the southeast of the site may represent potential routes for ground water contamination of the deeper parts of the Barnsdall aquifer (Reference 11). Two water wells, one of which is contaminated with petroleum, were drilled to depths around 200 feet on the (b) (6) property (References 5E; 5H). They have been abandoned and plugged (References 5H; 5Q). The integrity of the plugging is suspect (Reference 5H); therefore, these wells may act as conduits for contamination to reach the deeper parts of the aquifer. There may be an unplugged refinery well located south of the church since an open six inch casing has been observed there, and two wells are indicated on the Sanborn Fire Insurance map (References 3; 5R; 7).

The site lies just northeast of Bristow, Oklahoma. Generally, the majority of the population in the area of interest is served by public water supplies from the City of Bristow, but some residences have private water wells within the four mile study radius of the site (References 12; 13; Figure 4). The City of Bristow obtains its water supply solely from wells in the Barnsdall Formation and the Vamoosa-Ada aquifer (References 2; 5A; 13). The nearest water well, which is a domestic well 110 feet deep, is located on site, south of the church (References 2; 5R; 5U; Figure 2). However, this well, which was perforated at 40 feet in a shallow water zone, has been abandoned as a drinking water source because of contamination from petroleum (References 5R; 5U). It has not been plugged, however, and could be put into operation (References 5; 8U). The Sanborn Fire Insurance Map shows two refinery water wells on either side of the railroad (Reference 7). Two deep wells have been drilled on the (b) (6) property but were plugged and abandoned because one became contaminated with petroleum waste and the other one had collapsed casing (Reference 5E; 5H). The residences on site are presently connected to city water via a 2 inch line (Reference 5E; 5H; 5R). The nearest active drinking water well is within one quarter mile north of the site (References 11; 13; Figure 2; 4), and serves an estimated population of 2.68 (Reference 13). It is 230 feet deep and produces water from sandstones in the lower part of the Barnsdall Formation (Reference 11). It is assumed that the vast majority of residences in the study area utilize municipal water; however, since most domestic wells are located outside the city, these wells are assumed to be sources of drinking water (References 11; 13; Figure 4). The total population served by private wells is described in the table below. The numbers were arrived at by multiplying the number of wells by the estimated average number of persons (2.68) within each household in Creek County (Reference 14).

Private Wells

Distance from Site (mi)	# of Wells	Est. Population Served by Private Wells
On-site	1	2.68
0 - 1/4	1	2.68
1/4 - 1/2	0	0
1/2 - 1	4	10.72
1 - 2	25	67.00
2 - 3	20	53.6
3 - 4	29	77.72
Total	80	214.4

There are eight active public water wells distributed across two study radius zones that make up the City of Bristow Municipal Water System (References 5A; 13). Bristow obtains its water supply solely from wells that are within the study area (Reference 5F). Two municipal wells were located about one quarter mile south and southwest of the site (References 11; 13). They were approximately 200 feet deep and produced from the Barnsdall Formation; but they have been abandoned (References 5A; 13). However, Well #7, the one located less than 1/4 mile southwest of the site was not plugged but has a welded steel cap and is capable of producing. The nearest active municipal well is located almost one mile southwest of the site (References 5A; 13). It also produces from deep sandstones of the Barnsdall Formation (Reference 5A; 13). There are no surface water intakes in the system which serves 4,300 people of Bristow and 116 people of Slick, Oklahoma (References 13; 15). There are four water storage towers within the distribution system (Reference 13). This is a blended system in which two large capacity wells (200 gpm) and one small capacity well (50 - 90 gpm) are produced together during 24 hour periods (Reference 13). The specific wells are changed periodically. Under this scheme, one well provides more than forty per cent of the daily water supply but not more than forty per cent of the total annual production (Reference 13). The population served by each well is apportioned according to the estimated annual production capacities of the individual wells (Reference 13). Well #14 is located in the 1/2 to one mile radius zone and the other municipal wells are located in the one to two mile zone. Thus, the apportioned population served by Well #14 is located in the 1/2 to one mile radius zone, while the rest of the population is placed in the one to two mile zone. A public well in the one to two mile radius zone serves the 50 residents of the Evergreen

Trailer Park (Reference 13). The 50 residents of the Fogle Mobile Home Park formerly used a well, which was located in the one to two mile radius zone, but they are currently using city water (Reference 13). The status of this well is unknown. The 116 residents of the Slick Rural Water Association also obtain their water supply from Bristow (Reference 13). Considering the 4,416 people served by the 8 wells of the Bristow Municipal Water System and the 50 people of the Evergreen Trailer Park served by one well, the total population served by public wells (4,466 people) is described in the table below (Reference 13). The one municipal well which is abandoned but not plugged is also included in the table.

Public Wells

Distance from Site (mi)	# of Wells	Est. Population Served by Public Wells
On-site	0	0
0 - 1/4	1	0
1/4 - 1/2	0	0
1/2 - 1	1	165
1 - 2	8	4301
2 - 3	0	0
3 - 4	0	0
Total	10	4466

There are no Well Head Protection Areas within a four mile radius of the Site (Reference 5I). As a result of historical practices at the site, a release of hazardous substances from the Wilcox Oil Company refinery site to the groundwater is suspected. In fact, ground water contaminated by petroleum has been observed in a well on site (References 3; 5R; 5U). The private wells located outside the city limits of Bristow are assumed to be drinking water supply wells. Those wells close to the site which produce from the shallow ground water are at considerable risk of contamination, as in the case of the well on the church's property. However, wells that produce from the deeper zones in the Barnsdall Formation are at less risk of contamination because of the presence of shale beds between the contaminated zone above and the water producing zone below (Reference 11). The nearest of the domestic wells that utilize shallow ground water for drinking purposes are located more than 1/2 mile away in an up-gradient direction, and the wells within 1/2 mile produce from the lower part of the aquifer. Therefore, the

residences served by these wells are considered secondary targets. The population served by public wells are also considered secondary targets due to the distance of the wells from the site. Since the church's well on site is not currently being used for drinking water and since the well located within 1/4 mile north of the site produces from the deeper parts of the Barnsdall Formation, these wells are not considered to be primary targets.

Surface Water

The topography in the vicinity of site is relatively flat being situated on the noses of several south trending highs (Reference 2; Figure 1). There are two south trending tributaries of Sand Creek on site (Reference 5; Figure 1). Sand Creek, which marks the southern boundary of the western part of the site is a small perennial tributary of the Little Deep Fork Creek and flows southeasterly across the NW/4 of Section 29 (Figures 1). Sand Creek enters the Little Deep Fork about 3.5 miles downstream from the PPE (Figure 3). The probable point of entry (PPE) into Sand Creek is on site and occurs in the SE/4 NW/4 NW/4 of Section 29-T16N-R9E (IM) in Creek County, (Figures 1; 2; 3). The 15 mile target distance ends in the Little Deep Fork Creek just south of Slick, within Section 20-T15N-R10E (IM) of the same county (Reference 16; Figure 3). A mean annual flow rate of 806 cfs was recorded at gaging station #2435, which is located on the Deep Fork River in the NW/4 SW/4 of Section 20-T14N-R12E of Okmulgee County, down stream from the confluence with the Little Deep Fork Creek (Reference 17). This was the nearest available information on flow rate. Assuming that less than half the flow at the gaging station is attributed to the Little Deep Fork, then the maximum flow for the Little Deep Fork at the confluence would be about 400 cfs. Using the same reasoning, the maximum flow of Sand Creek at the confluence with the Little Deep Fork would be approximately 200 cfs. However, there are two tributaries that enter the Little Deep Fork after the Sand Creek confluence (Skull and Chicken Creeks) and before the 15 mile target distance (Reference 16; Figure 3). Two additional creeks flow into the Little Deep Fork after the 15 mile end point. Assuming that all five tributaries have similar flow characteristics, then the maximum flow of Sand Creek at the confluence with the Little Deep Fork would be 50 cfs. However, the creek, which is shown as a perennial stream on the topographic map (Reference 16; Figure 1), may not flow at times during the late summer months (Reference 5P).

The normal annual precipitation in the region of the site is about 37.19 inches per year (Reference 10). Portions of the site are located within the 100 year flood plain which is located along Sand Creek and the south trending tributary on the east side of the (b) property (Reference 18). There are no drinking water intakes located within the 15 (b) mile target distance (Reference 15).

Sand Creek is considered by the State of Oklahoma to be in the "habitat limited aquatic community" subcategory of the fish and wildlife propagation beneficial use and within the "secondary body contact" category of the recreational beneficial use (Reference 19). The

Little Deep Fork Creek is placed in the "warm water aquatic community" subcategory of the fish and wildlife propagation beneficial use and within the "primary body contact subcategory for recreational beneficial use (Reference 19).

Habitats of the endangered and threatened species listed below are known to occur in Creek County and may also be associated with the 15 mile target distance (Reference 20). Although the location of the site is near an urbanized area (Figures 1; 3), it is possible that these species would be found in the vicinity of the site (Reference 20). However, since no sightings have been observed or reported, all species listed below are considered secondary targets (References 2; 23).

Species	Federal Status
Bald Eagle	Endangered
Interior least tern	Endangered
Peregrine falcon	Endangered
Piping plover	Threatened
Cerulean warbler	Category 2 Candidate
Loggerhead shrike	Category 2 Candidate
Prairie mole cricket	Category 2 Candidate
Arkansas River speckled chub	Category 2 Candidate
Texas horned lizard	Category 2 Candidate
Western Snowy plover	Category 2 Candidate
Fissa sedge (<i>Carex fissa</i>)	Category 2 Candidate

There are about 30 miles of wetland frontage associated with the 15 mile target distance (Reference 21). The nearby Sand Creek and Little Deep Fork Creek have a potential for contamination from the site. In fact, a seep was identified in Sand Creek just west of the church property (Reference 2; 5R). Also, the oily sludge flowing out of the surface impoundments in the NE/4 NW/4 of Section 29, which have had their berms recently cut by bull dozer, will likely reach Sand Creek by surface drainage (Reference 2).

Soil Exposure

The site is an abandoned crude oil refinery located near residential areas (Reference 2; Figure 1; 3). The presence of soil contaminated by hazardous substances is assumed to be about 15.5 acres because of evidence found during the site reconnaissance (Reference 2). There are three residences located on site (Reference 2). The (b) (6) property, encompassing about 18 acres, is completely enclosed with a fence, and has the only controlled access on the site (Reference 2). There are about eight people living on site and an additional 11 people living within 200 feet of the site (Reference 2). These

people are considered as primary targets. The site is inactive so there are no workers employed at the facility (Reference 2). There are no schools or day-care centers within 200 feet (Reference 2). The estimated total population within 1 mile of the site is 2,393. This number is based on a house count taken during the site reconnaissance, the average number of persons (2.68) per household, and the Geographical Exposure Modeling System (GEMS) data (References 2; 14; 22). Several types of activities occur at the site including: occasional earth work; salvaging scrap iron; domestic activities associated with the residences on site; activities associated with the church; and some hunting (References 5; 8S). The Oklahoma Natural Heritage Inventory has no records of terrestrial sightings of rare species within 5 miles of the site (Reference 23).

Air

An air release is suspected since there were unusual odors observed during the site visit (Reference 2). The prevailing wind direction is from the north during the months of December through February and from the south the rest of the year (Reference 10). There is an estimated population of 8 persons who live in residences on site (Reference 2). Habitats of the endangered and threatened species listed under the surface water pathway are considered secondary targets (Reference 23). The estimated population and wetland acreage within the four mile radius of the site is described in the table below (Reference 24).

Distance from Site (mi)	Est. Population	Est. Wetland Acreage
On-site	8	2*
0 - 1/4	54	4.5
1/4 - 1/2	495	7
1/2 - 1	1,836	9
1 - 2	2691	65
2 - 3	1,017	145
3 - 4	517	112
Total	6,616	342.3

* - estimated.

There are an estimated 2 acres of wetlands present on site when the expanded site area is considered (Reference 2). Vegetation suggesting the presence of wetlands (cattails) was observed during the site reconnaissance in one surface impoundment and there are wetlands associated with Sand Creek (Reference 2; 23).

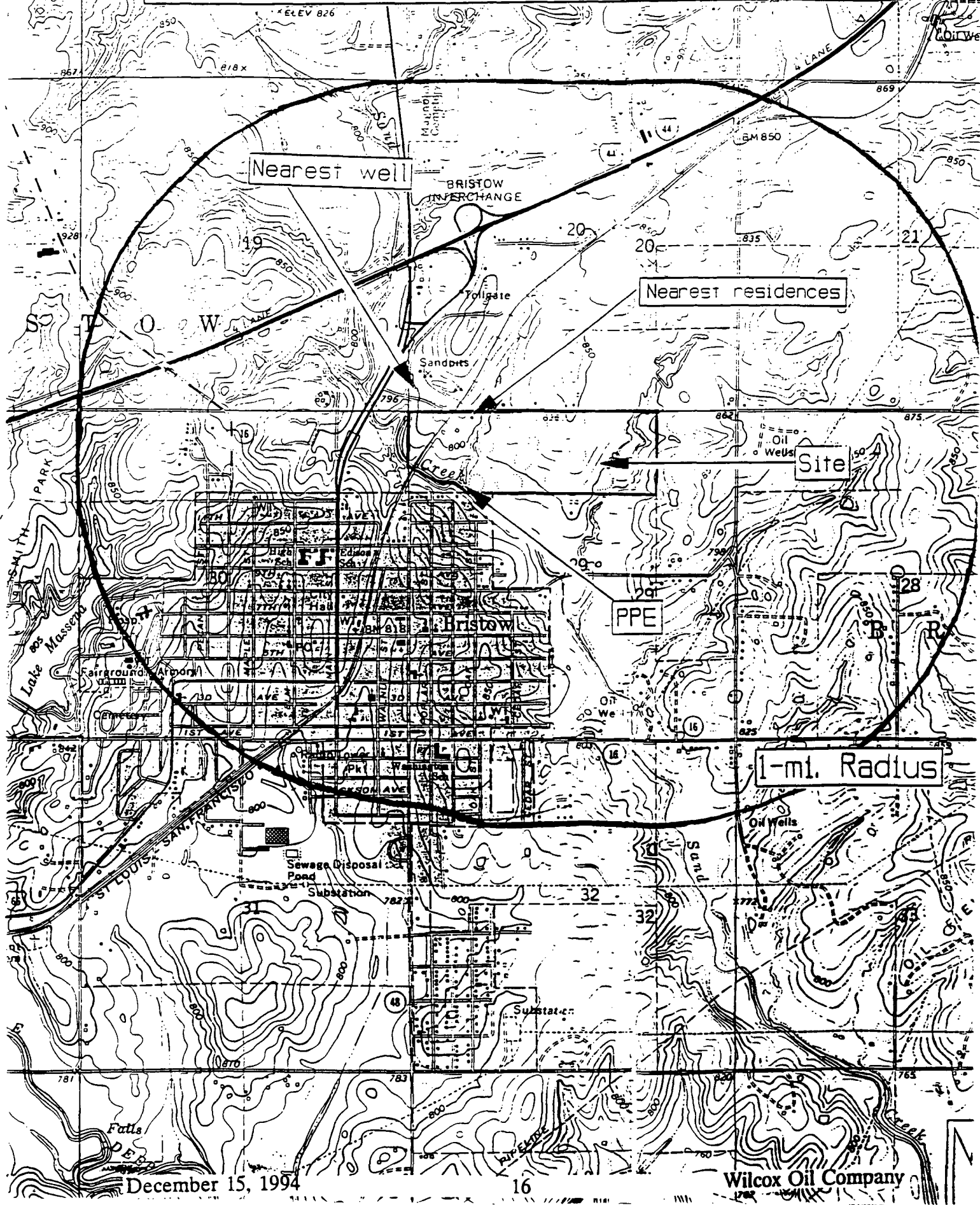
IV. Summary and Conclusion

The Wilcox Oil Company operated a refinery outside of the city of Bristow in Creek County, Oklahoma, for an estimated period of 35 to 40 years. As a result of this practice, ground water at the site has been adversely affected by potentially hazardous substances associated with the site. However, the private wells within the study area are located either in areas served by municipal water systems; located at relatively safe distances and up-gradient from the site; or produce from the deeper part of the Barnsdall Formation below shale beds. Therefore, the residences served by these wells are considered secondary targets. The population served by public wells are also considered secondary targets due to the distance between the wells and the site.

Sand Creek receives suspected contaminated runoff from the site so the associated wetlands would be primary targets. The habitats of threatened or endangered species and the warm water aquatic community "fishery" of the Little Deep Fork Creek are considered secondary targets. An air release is suspected due to the odors detected during the site reconnaissance. Contaminated soil is assumed because of the barren areas and stressed vegetation observed during the site reconnaissance. The residents on site are considered primary targets under both these pathways. Also, residents within one quarter mile are considered primary targets under the air pathway. Considering the fact that there are primary targets associated with the air, surface water, and soil pathways; and because subsurface contamination of ground water and soils at the site have been observed, a Site Inspection is recommended in order to better characterize the site and to determine whether threats to human health and the environment exist.

V. Figures

Figure 1: Vicinity Map

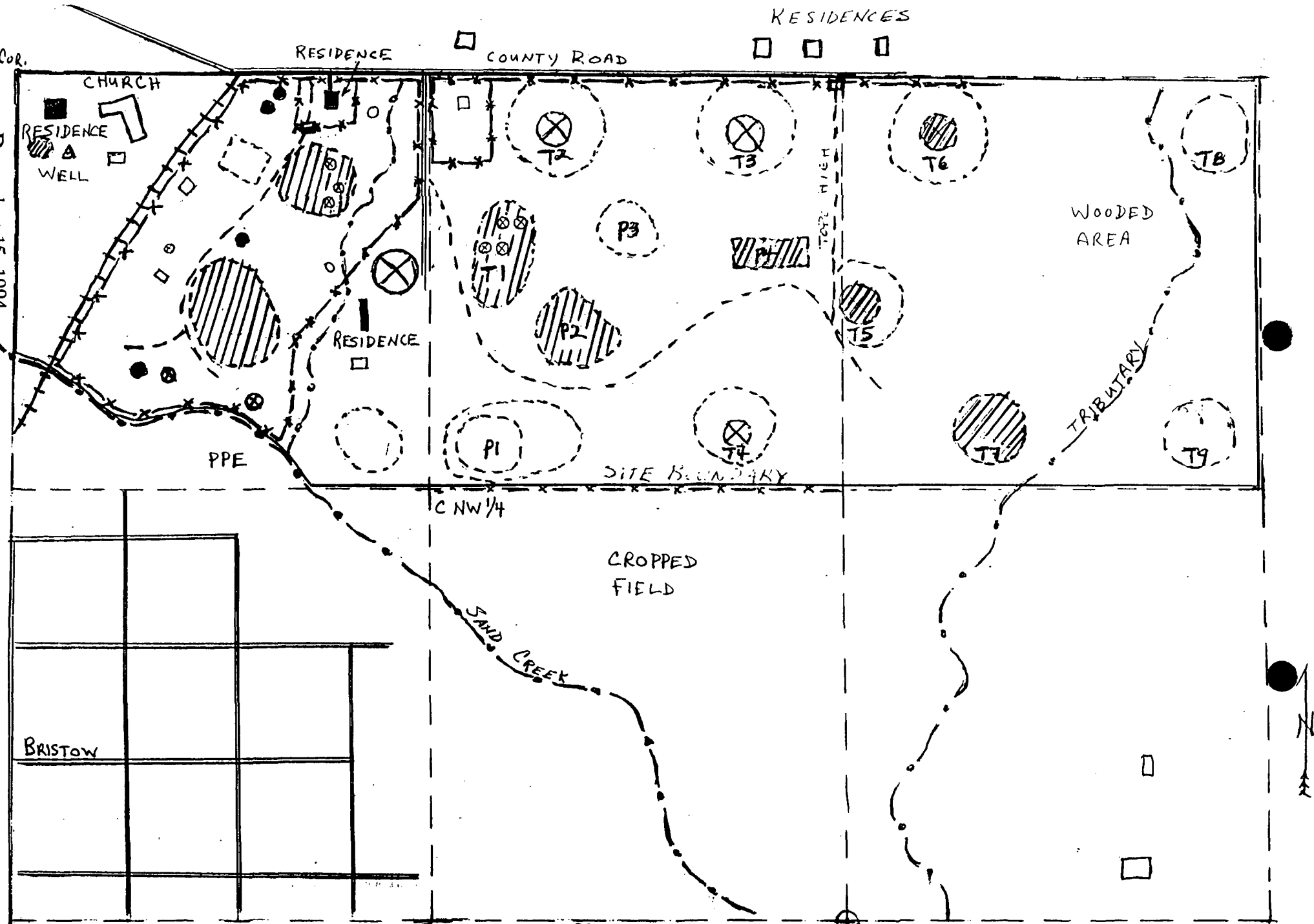


100r.

December 15, 1994

17

17



LEGEND

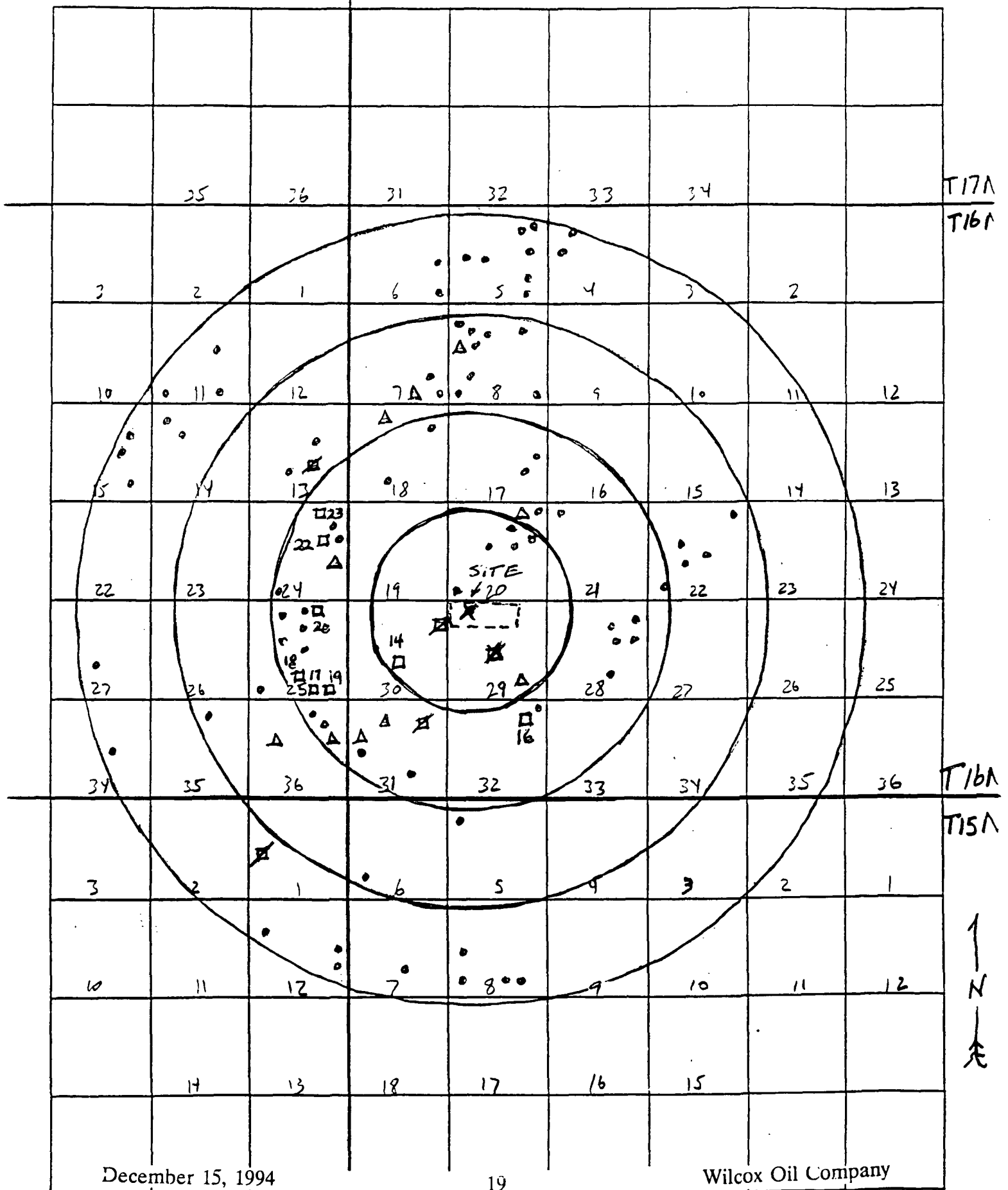
- - ONSITE RESIDENCE
- - EXISTING STORAGE TANK

- ◐ - OBSERVED WASTE
- - - FENCE
- - - CREEK/DRAINAGE
- - - LEAK PATH
- ⊗ - AREAS OF SUSPECTED WASTE.
- ⊘ - GATE

C. of Sec 29
T16N R9E

FIGURE 2
SITE SKETCH
1 inch = 400 FT

FIGURE 4



- DOMESTIC
- PUBLIC

ABANDONED MUNICIPAL
DOE R9F

1.11 0.11

Figure 3: Surface Water Migration Route

PPE

Willcox Oil Company

15-mi. End

SHEET NO. 1
SHEET NO. 2



CREEK COUNTY

November 15, 1904

Willcox Oil Company

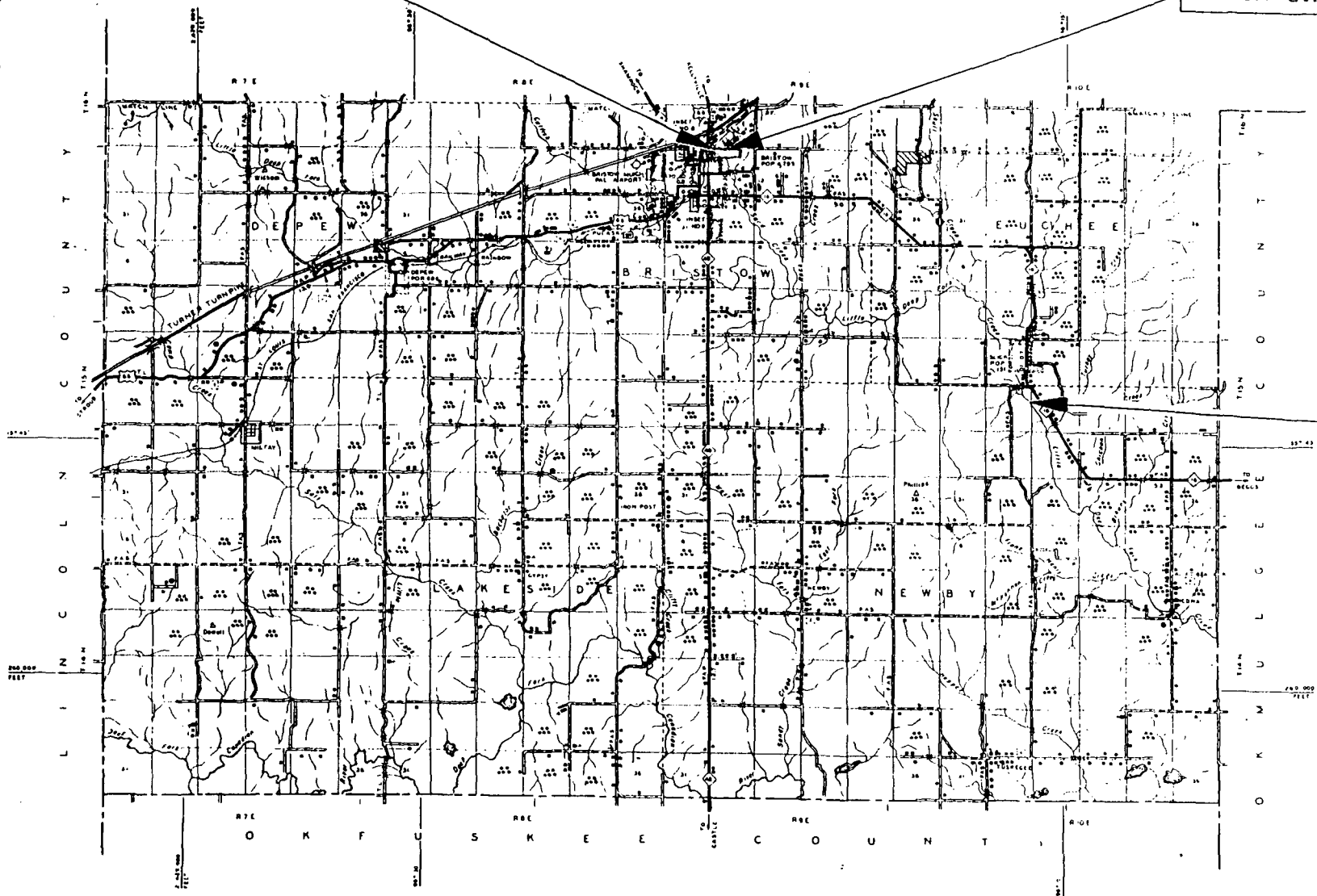
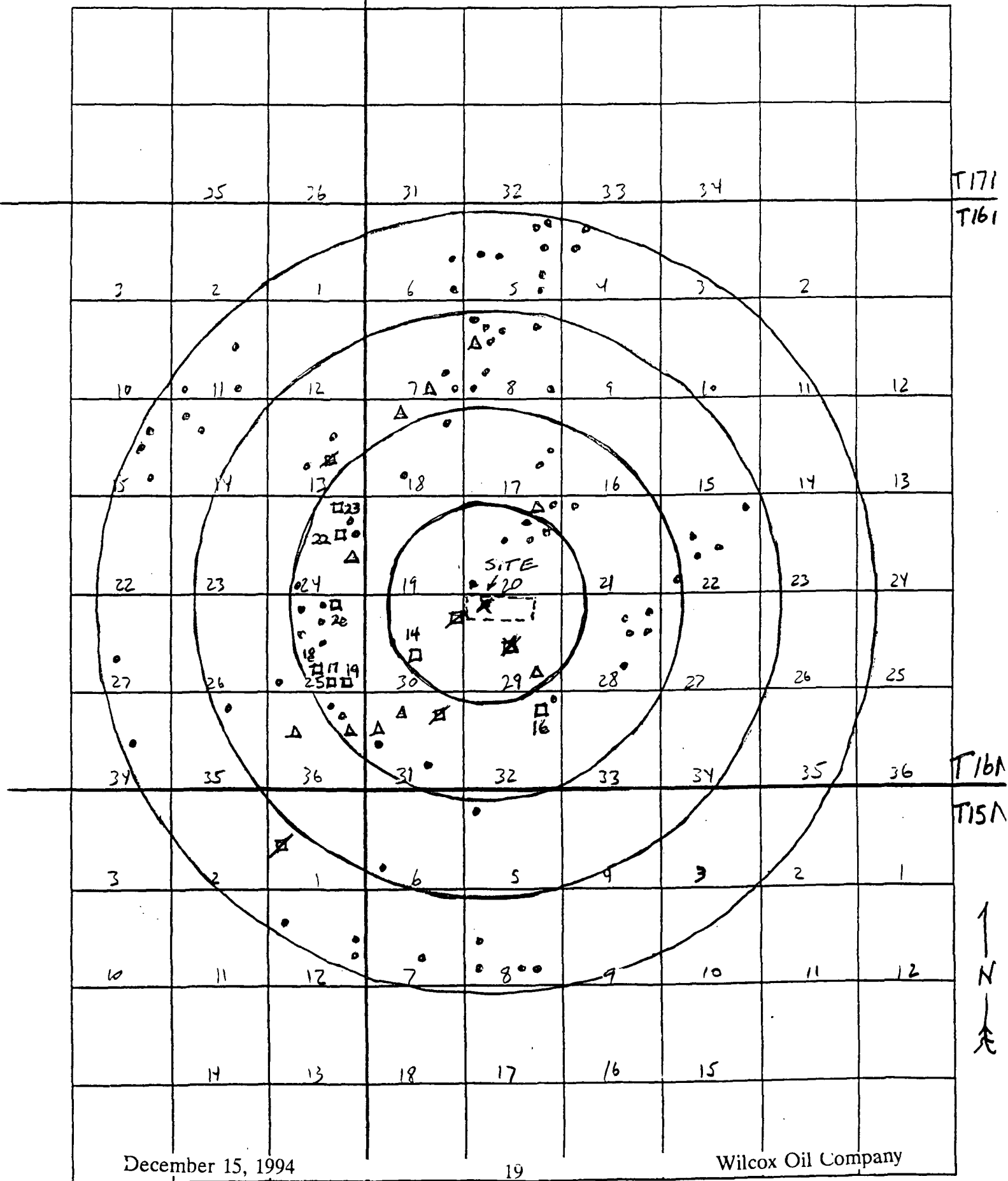


FIGURE 4



• - DOMESTIC
Δ - PUBLIC

□ - ABANDONED MUNICIPAL
DOE R9F

1.1.1

1.1.1

VI. Photodocumentation

K.K.
Photographer: Karen Khalafian
Date: December 16, 1994

(A2)
Witness: David Cates
Direction: North



Comments: Photograph #1 (matches slide #21). This photo shows the oily
sludge in the surface impoundment on (b) (6)

(b) (6)

L.E.
Photographer: Karen Khalafian
Date: December 16, 1994

DAC
Witness: David Cates
Direction: Southeast



Comments: Photograph #2 (matches slide #8). This photo shows the area of contaminated soil in the south central portion of the (b) (6) property (NW/4 NW/4 of Section 29).

K.K.
Photographer: Karen Khalafian
Date: December 16, 1994

DAC
Witness: David Cates
Direction: East



Comments: Photograph #3 (matches slide #12). This photo shows the coke and asphalt-like material covering the ground on the (b) (6) property (NW/4 NW/4 of Section 29).

E.K.
Photographer: Karen Khalafian
Date: December 16, 1994

DAC
Witness: David Cates
Direction: East



Comments: Photograph #4 (matches slide #6). This photo shows the oily sludge in the bottom of a partially salvaged tank located on the (b) (6) property (NE/4 NW/4 NW/4 of Section 29).

VII. List of References

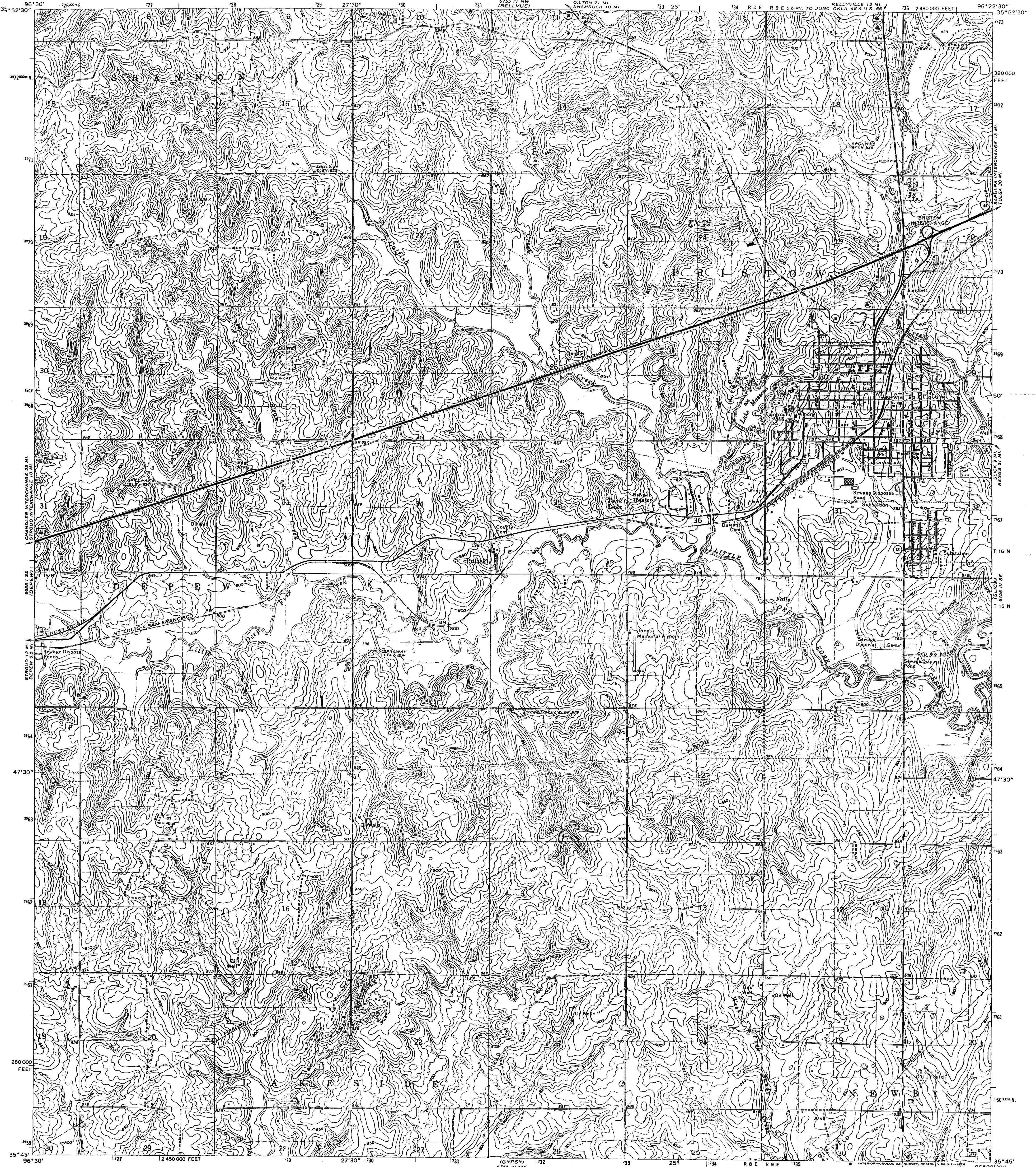
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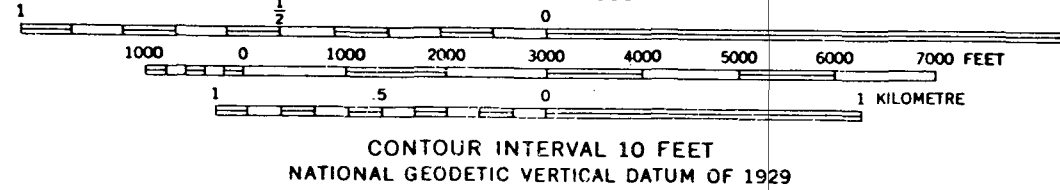
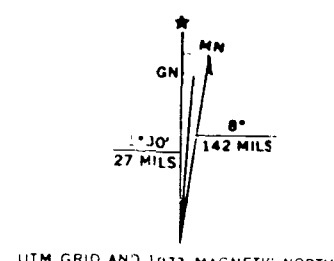
REFERENCE 2

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

BRISTOW QUADRANGLE
OKLAHOMA—CREEK CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

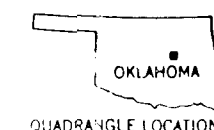


Mapped, edited, and published by the Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial
photographs taken 1972. Field checked 1973
Projection and 10,000-foot grid ticks: Oklahoma coordinate
system, north zone (Lambert conformal conic)
1000-metre Universal Transverse Mercator grid ticks,
zone 14, shown in blue. 1927 North American datum
Red tint indicates area in which only landmark buildings are shown
Fine red dashed lines indicate selected fence and field lines where
generally visible on aerial photographs. This information is unchecked



ROAD CLASSIFICATION
Primary highway, hard surface ——— Light-duty road, hard or improved surface ———
Secondary highway, hard surface ——— Unimproved road ———
○ Interstate Route ○ U.S. Route ○ State Route

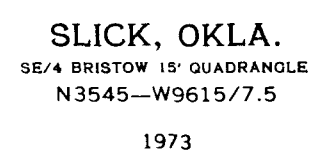
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND BY THE OKLAHOMA GEOLOGICAL SURVEY, NORMAN, OKLAHOMA 73069
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



BRISTOW, OKLA.
SW 1/4 BRISTOW 15' QUADRANGLE
N3545—W9622.5/7.5

1973
AMS 6755 IV SW—SERIES V883

SLICK QUADRANGLE
OKLAHOMA—CREEK CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SE/4 BRISTOW 15' QUADRANGLE



REFERENCE 3

WILLIAM F. B.

OKDOO 1915

FIELD BOOK

DI-GEN

DOO 1910

Wool 1907

ERS

CK

1907

[illegible]

Wilcox BIL
(Wilcox)

8/16/94

830 DIANE G. WILLIAMS (DGO)
STEVE MITCHELL ^(SSM) DEPART TULSA
FOR SITE. HOLD HEALTH
& SAFETY MEETING

0900 ARRIVE AT SITE
NOT PRESENT.

(b) (6)

0920 BSW/SSM CALL + LEAVE
MESSAGE FOR [REDACTED] (b) (6)

(b) (6)

0925 RETURN TO SITE.
STOP + TALK WITH
PASTOR (b) (6) AND
DEACON (b) (6)

(b) (6)

(b) (6)

0930 DEPART FOR MCALESTER
TO PICK UP EQUIPMENT
(SHIPPED TO WRONG
HOTEL)

2:30 ARRIVE BACK AT SITE
AND CALIBRATE OVA
TO 98.5 ppm INJECTION

DGW

WILCOX

8/16/96

MEET WITH

(b) (6)

(b) (6)

OUT FLAME OUT.

DRIVE SITE W/

(b) (6)

OBSERVED SEEPS OF
BLACK OILY SUBSTANCE
NUMEROUS BERMED
AREAS W/ ~~W/~~ WHAT
APPEAR TO BE TANK
BOTTOMS. PETROLEUM-LIKE
ODORS.

WILLIAMS CO. PIPELINE
RUNS THROUGH PROPERTY.

BERM CUT ON PIT +
OIL MIGRATING TOWARD
CREEK.

CHILDREN FROM NEARBY
MOBILE HOME PARK
TRESSPASS ON PROPERTY
(PLAY) ALMOST EVERY
OTHER DAY

DGW

WILCOX

8/16/96

1535 DRIVE TO CHURCH

MEET W/ PASTOR

(b) (6)

NOTED MAINLY DEBRIS +
HARD-ASPHALT-LIKE
MATERIAL IN YARD.

WELL IS PLUGGED; HAD OILY
SUBSTANCE (PETROLEUM)
IN IT.

1600 MEET WITH

(b) (6)

(b) (6)

HE HAS OBSERVED

NO OILY MATERIALS ON
HIS PROPERTY. ~~SSM~~ (SSM)

HE PERIODICALLY CUTS UP
TANKS + SALVAGES METAL.

1610 DGW IN DRIVE PROPERTY.

OBSERVED PIT IN BACK
WITH WHITE SALT-LIKE
RESIDUE. SOME OLD
STRUCTURES AND TANKS
STILL STANDING.

(b) (6)

ALSO SAID

DBW

WILCOX

8/16/96

THERE ARE FISH PRESENT
IN SAND CREEK.

ADDITIONAL NOTES:

MR. WHITE THOUGHT RESIDENCES
NORTH OF SITE ARE ALLOW
WELL WATER (PRIVATE).

SSM/DBW OBSERVED
REMNANT CONCRETE STRUCTURES
AND BLACK STAINED
SOIL NORTH OF SITE.

(b) (6) LIVES NORTH
OF SITE & SAID THE
AREA NORTH OF SITE
ALSO OPERATED AS A
REFINERY AND THAT
THE PROPERTIES HAVE
REMNANT TANKS, AND BLACK
DISCOLORED SOILS.
ALL OF THESE RESIDENCES
ARE REPORTEDLY ON
PRIVATE WATER WELLS.

1630 DEPART SITE FOR FEDEX

Alan L. Miller

[illegible]

0630

P.1
11/18/96

Team members are
Diane Williams (D&W)
Eric Tate (ET)
Lynne Cusick (LC)
Peter Reung (PR)

0930

1030

1055

DGW/JLI COLLECTED OI
FROM SAND CREEK
UPSTREAM OF CONFLUENCE
WITH INTERMITTENT
CREEK. FINE LT BROWN
SAND/SILTY SAND
WELL SORTED, SAT.
SAMPLED 0-6" PHOTO 1-2

(2)

WILCOX

11/18/96

1105 DGN/JH COLLECT SED-02
FROM SAND CREEK, WEST
OF S. HWY 66 BRIDGE.
SOILS ARE SAME AS
SED-01. SAMPLED 0-6"
PHOTO 3.

1120 DGN/JH COLLECT SED-03
FROM SAND CREEK
EAST OF S. HWY 66
BRIDGE. SOILS ARE
SAME AS SED-01/SED-02.
0-6" COLLECTED
OVA NO READINGS
ABOVE BACKGROUND
IN BREATHING ZONE
AND IN HOLE.

PHOTO 4. MINIRAM=0.00
NOTED BRICKS/CONST. DEBRIS WARRA.

1140 DGN/JH COLLECT SED-04
FROM UNNAMED INTERMITTENT
CREEK N. OF REFINERY
ROAD. SOILS ARE SAT,
BROWN SILTY, GRAVELLY, FINE
SAND, POORLY SORTED.
SAMPLED 0-6" PHOTO

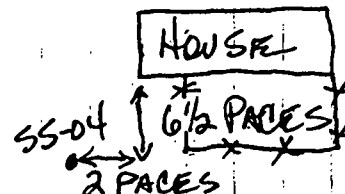
WILCOX

(3)
11/18/96

OVA READINGS = 0 IN BREATHING
SPACE + HOLE. MINIRAM=0.00

1205 SPEAK TO (b) (6)
NOTIFY THAT WE ARE TO SAMPLE
YARD + CHURCH. SHE GRANTS
PERMISSION.

1210 COLLECT SS-04 FROM
(b) (6) RESIDENCE

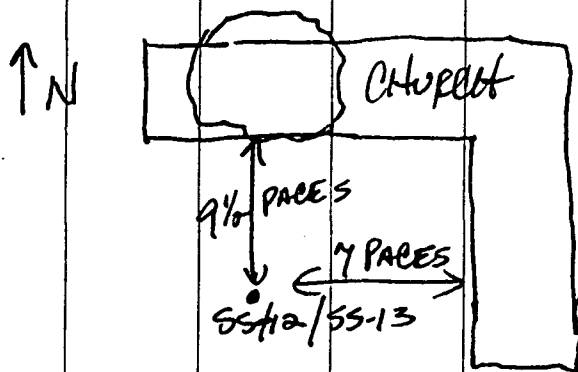


SOILS ARE BROWN FINE SILTY
SAND, WET-SAT.
SAMPLED 0-6" OVA READINGS
ARE ZERO IN BREATHING
SPACE + HOLE. OVA DGM
MINIRAM = 0.92. PHOTO.

1220 DGN/JH COLLECT SS-12
FROM CHURCH PROPERTY

(4)

WILCOX 11/18/96
 SOILS ARE BROWN SILTY
 SAND, WET-MOIST.
 GRAVEL-SIZE PIECES OF
 BRICK + CONCRETE PRESENT.



COLLECTED 0-6"
 OVA READINGS = 0
 MINIRAM = 0.00

1225 COLLECT SS-13.
 DUPLICATE OF SS-12.

1245 BREAK FOR LUNCH
 1245 RETURN TO SITE

2IVE TO (b) (6)
 (b) (6) CAN
 & US ACCESS

(5)

WILCOX 11/18/96
 TO PROPERTY (BY UNLOCKING
 GATES)

1420 DGM/JLT COLLECTS SS-06
 FROM (b) (6) PROPERTY.
 STRESSED VEGETATION.
 OVA READING = 0.
 MINIRAM = 0.00 + 0.49
 UNUSUAL ODOR. BROWN
 SILTY, CLAYEY SAND, SAT.
 SAMPLED 0-6"

1520 DGM/JLT COLLECTS SS-0
~~SS-0~~ SED-06 FROM
 SANDS & Creek: unnamed
 intermittent creek.
 Silty, sand, organic
 materials, saturated,
 brown
 Sample 0-6"
 OVA reading: 0
 Mini Ram 1.77

1530 COLLECTED SED-07 (DUP. SED 06)
 1615 DGM/JLT COLLECT SS-05
 FROM (b) (6) RESIDENCE
 YARD 0-6 PACE'S FROM

⑥

HOUSE.

WILCOX

↑ N

11/18/96

SS-05



6 1/2 PAGES

SOILS ARE DK BRN
WST. SILTY SAND, FINE.
SAMPLED 0-6"

QVA = 0.00

MIN. RAIN = 0.0

1630 RETURN TO TRUCK TO WORK
ON CLPPAPERWORK.

1715 DEPART SITE TO
PACK SAMPLES INTO TULSA.

Alvin Williams

WILCOX

11/19/96

0800 TEAM MEETS

0830 TEAM DEPARTS TULSA FOR
SITE.

0930 TEAM ARRIVES AT SITE

0945 DGW/JU DEPART FOR
SUPPLIES.

1000 DGW/JU RETURN +
DROP OFF SUPPLIES

1020 DGW/JU COLLECT SED-08
FROM SAND CREEK.

FINE SAND, SOME SILT,
LIGHT BROWN, SAT. 0-6"

1105 JU/DGW COLLECT SED-09
FROM THE CONFLUENCE OF
SAND CREEK + AN UNKNOWN

INTERMITTENT STREAM
THAT DRAINS THE SITE.

FINE, LT. BROWN SAND
W/SOME SILT, SAT. 0-6"

(OBTAINED PERMISSION
TO CROSS PASTURE TO CREEK)

1210 DGW/JU COLLECT SS-01
SOUTH OF SAND CREEK
BRIDGE (S. HWY 66) +

(8)

WEST OF S. HWY 66. SOILS ARE DARK BROWN, SANDY SILT, MOIST. 0-6"

1215 DGN/SLI COLLECT SS-02 FROM EAST SIDE OF S. HWY 66 (ACROSS HWY FROM SS-01). DK BRN SANDY SILT, MOIST-WET, 0-6" SS-01 + SS-02 ARE BACKGROUND SAMPLES. SS-02 IS LOCATED ~~(8A)~~

1230 DGN/SLI COLLECT SS-03 (BACKGROUND SAMPLE). LOCATED ON A HILL (TOPOGRAPHIC) APPROX. 50 FT FROM RD TO MCDONALD'S. SOILS ARE REDDISH-BRN SANDY SILT, MOIST TO WET, 0-6"

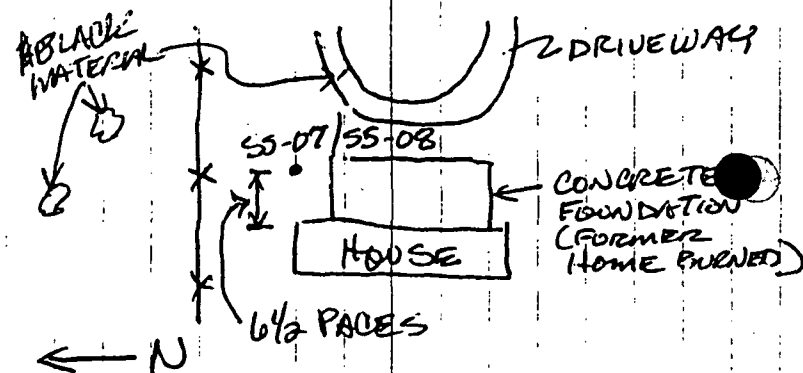
1245 BREAK FOR LUNCH.

1330 DGN STOPS BY PHIL ELLAS' RESTAURANT + DISCUSSES ACCESS.

1400 ~~DGN~~ TEAM RETURNED TO SITE.

(9)

1400 DGN/SLI GAIN ACCESS TO ~~(b) (6)~~ RESIDENCE. ~~(b) (6)~~ SHOWS US AREAS OF ~~(b) (6)~~ THAT BLACK MATERIAL HAS SEEPED UP FROM GROUND, LOCATED N. OF HOUSE ~~(b) (6)~~ IN FENCED AREA; ALSO COMES UP BETWEEN CRACKS IN DRIVEWAY. MAINLY SEEPS WHEN TEMP. IS HOT.



1405 COLLECT SS-07. SOILS ARE DK. BROWN SANDY SILT, WET. 0-6" NO OVA READINGS ABOVE BACKGROUND ON ~~(b) (6)~~

(8) (10)
(12)

WILCOY

11/19/94

IN HOLE OR BREATHING
SPACE.

1415 COLLECT SS-08. DUP. OF SS-07.

1430 COLLECT SED-05 FROM
POND BEHIND RESIDENCE.
NOTED BLACK ASPHALT-
LOOKING MATERIAL AROUND
E. SIDE OF POND. INTEREST-

TATED AREA FROM (b) (6)
PROPERTY DRAINS DIRECTLY
INTO HERE. SOILS ARE
BROWN FINE SILTY SAND,
SAT. 0-6" SMALL INCLUSIONS
OF BLACK SAND. OVA
READINGS = 0.

NOTED CHICKENS +
HORSES AT (b) (6) RESIDENCE.
3 PEOPLE LOOK AT (b) (6)
RESIDENCE.

1535 DBW/JL COLLECT SED-10
FROM SAND CREEK AT
HWY 116 (1ST STREET)
SOILS ARE LT. BRN
FINE SAND, MST. WET
0-6!!

WILCOY

11/19/94 (11) (17)
(12)

1545 RETURN TO SITE + BEGIN
OLD PAPERWORK.

1655 DEPART SITE FOR FEDEX.

William J. Williams

(12) (13)
1350

LATE PMR
FROM RESIDENCE.
SOILS ARE DK BRN.
SILTY SAND, MST. 0-6"

↑ N

HOUSE

60 FT
(PAVED OFF)

(b) (6)

BIZISTON, OK.

WILCOX OIL
ENTRY:

ECT COLLECT SS-11

11/20/76

WILCOX OIL

(12) (13)

0740 TEAM DEPARTS TULSA
FOR SITE.

0830 ARRIVE IN BRISTOL STOP FOR
ICE. 1

0845 ARRIVE AT SITE.
CALIBRATE MINIRAM
CALIBRATE OVA (95 ppm
METHANE)

0900 BEGIN STAGING EQUIP.

JCI
01000 T&W: JCI collect WS-OS
from pit.

Berm of pit is brush.
OVA reading of waste
is 60 ppm (12) units
OVA reading in brush
zone is 160.
Waste is oily black sticky
A smell from the
pit is noticeable.
Looks like a waste has
piled out side berm
and a fire occurred.

(14)

11/20/26 Wilcox 0.1
Trees in the pocket have
looked burned up.

1010 Sample to (102)
WS-06 collected by
D.G.W. WS-06 is a
duplicate of
WS-05

1035 Reached another pit,
the one with two
chambers. Bottom
of pit has been
breached. There is
a stream next to the
opening.

There is standing water
in the opening and
stream. P.M.R. located
a drainage ditch
adjacent to the berm
with standing water
in it. There is vegetation
but is low brush.

There is sparse
vegetation in the
area of the berm.

(15)

11/20/26 Wilcox 0.1

There is also standing
water in the pit.

1040 WS-04 sample collected
by D.G.W.
Black-brown, wet, saturated
looked charred, like (102)
it's been burned.

CVA reading is zero in
breaching zone.

CVA reading in sample
hole is 1 unit above
background.

Humid reading: 0.11

" " 0.07

Pit & pond drain into inter-
stream. Water is flowing
in it.

1105

Pond 2, cell 2, has standing
water. No ducks are seen
on the water.

Trees are growing in the
pond. Some short
brushes.

The stream also flows
back along this part

(16)

Wilcox Oil 11/20/96
of Pond? Some vegetation
looks burned.

There is evidence of
live stock. Foot prints? clearing
There is also evidence
of beaver chewed
tree.

1115

Sample WS-07 collected
by DGM in tank area.
Metal debris on berm
Rusted metal on ground.
DGM decided to not take
the sample at this time.
Area seems to be a tank
bottom. DGM unsure if
Gulf coast labs will be
able to analyze sample.

LCI observed hoof
prints in the area.
Tall grass growing in
patches in the tank
bottom area.

DGM Spent a spot to
sample. Located where
berm is breached.

11/24/96 Wilcox O.I.
There is an petroli ferous
odor.

Where the berm is breached
there is an oily substance,
looks like it was flowing out.
There is also black stuff
outside of the tank area in
the breached area.
AVA reading in breaching zone
is zero above background.
AVA reading in hole is zero
above background.
Mini Ram is 0.05 \pm 0.03

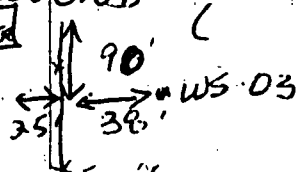
11.45 BREAK FOR LUNCH

12.30 BUY SUPPLIES, LUNGE.
PHONE CALLS

1300 ARRIVE AT (b) (6) RESIDENCE

1310 COLLECT WS-03 FROM
SIDE PASTURE. BLACK
WOOD MATERIAL SEEPING
FROM GROUND

Hand



(18)

11/20/96

Wilcox Oil

1400

DGW collects WS-08
from leached tank bottom.
PHR notes there is an
oily sheen in the steady
water in the leached
tank bottom area.
Black material, asphalt
icing.

OVA in bucket:

Sample here is 0 over
background.

There is another here
a petroleumaceous odor.

1430

DGW collects Sample
WS-01 from ~~Pond~~ Pit 1 ~~Pit~~ -
Berm of pit seems to
no exist anymore. Tractor
tracks are seen around
pit in indications of
the waste. Steady
water in the pit has
an oily sheen.
OVA readings from Sample
here is greater than
1000 units

(19)

11/20/96

DGW

Wilcox Oil

Black, oily sheen, grey,
stick

A slight odor is detected

1450 DGW collects Sample

WS-02 from Pond 2.

Same as WS-02

OVA reading of sample
is 0 units above
background

Sample is collected

from an area w/
steady water

Substance is like fat (12)
tacky

1510 TEAM RETURNS TO TRUCK
AND BEGINS PACKING
SAMPLES / PREPARING TAGS.

1700 TEAM DEPARTS SITE
FOR FEDEX.

William S. [Signature]

REFERENCE 4
Not Used

REFERENCE 5
Not Used

REFERENCE 6



SOURCE ACE AERIAL PHOTOGRAPHY, INC. 15 JANUARY 1966

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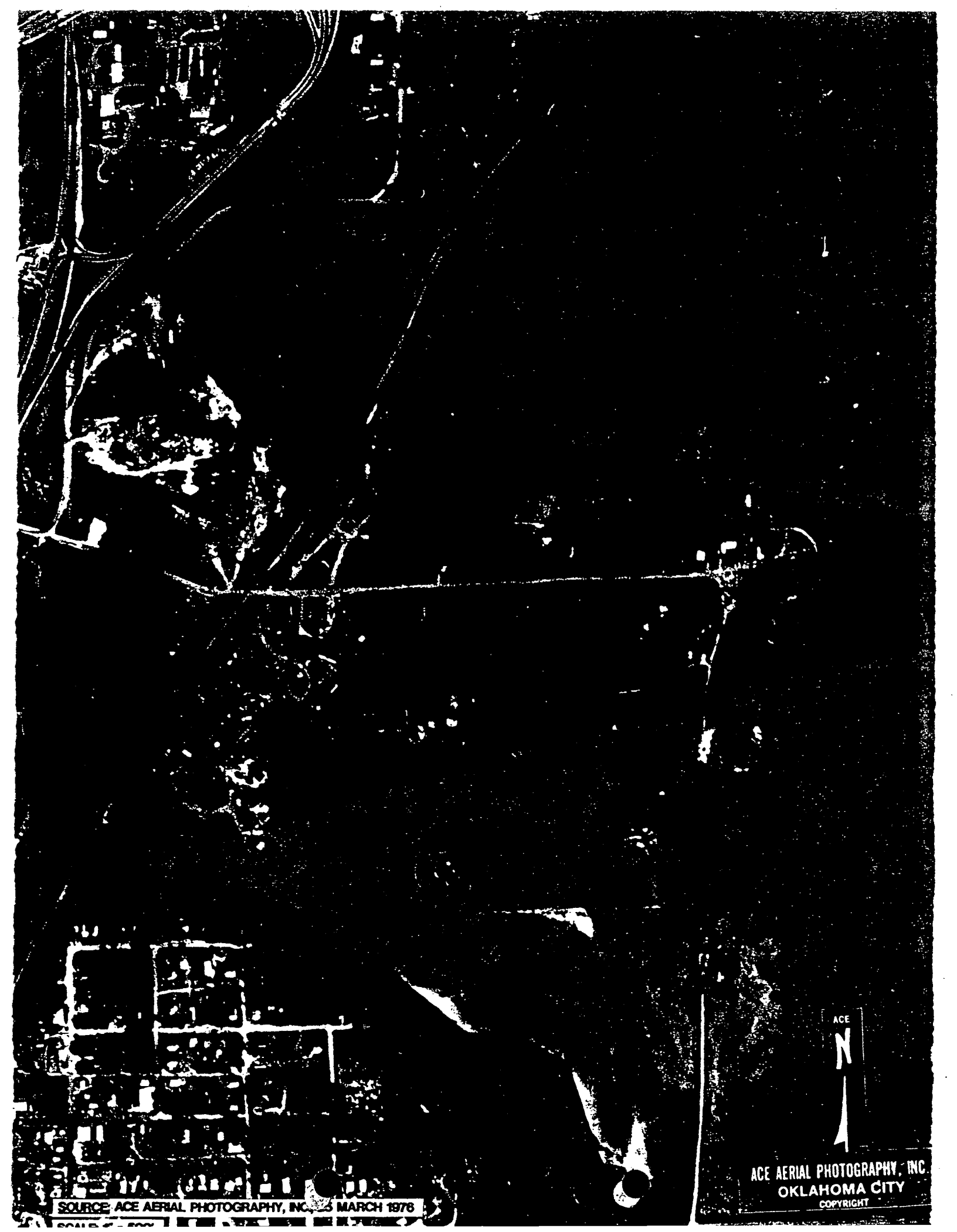
REFERENCE 7



SOURCE: AERIAL OKLAHOMA, INC., 21 FEBRUARY 1995

SCALE: 1" = 500'

N
AERIAL OKLAHOMA
(405) 840-8977

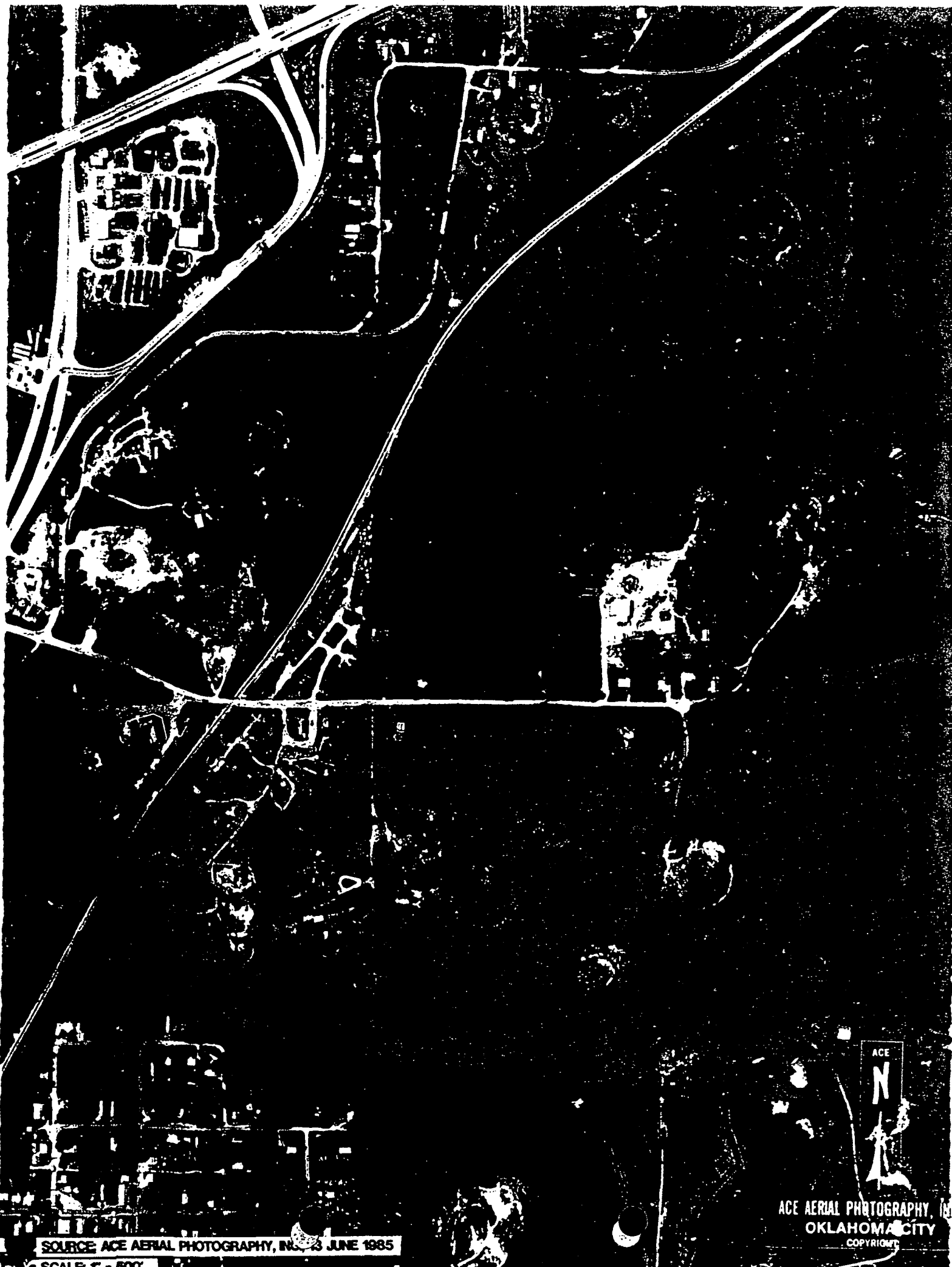


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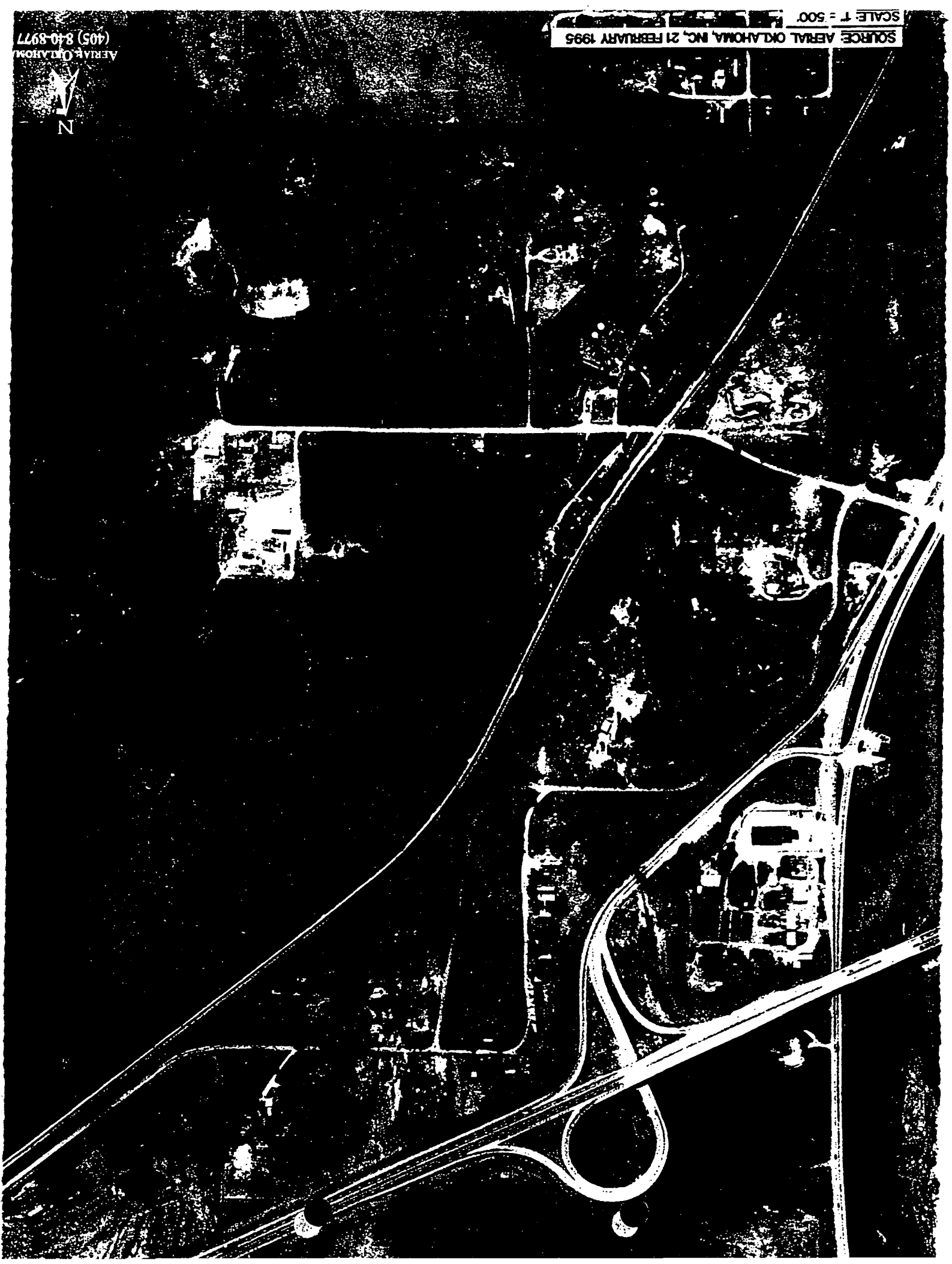
SCALE 1" = 1000'



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SCALE: 1" = 500'

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REFERENCE 8
Not Used

REFERENCE 9

WESTON
PHONE CONVERSATION RECORD

ORIGINATOR


Diane G. Williams

☐ ORIGINATOR RECEIVED CALL

☒ ORIGINATOR PLACED CALL

CONVERSATION WITH:

DATE: 07/31/96

NAME:

(b) (6)
Property owner
Wilcox Oil Company Site

TIME: 15:00

PHONE:

(b) (6)

W.O. NO.: 04606-056-026-0600

SUBJECT: Wilcox Oil Company

NOTES:

(b) (6) indicated that his son and daughter-in-(b) (6) live in the house located at the former Wilcox Oil refinery. He asked that we check in with her before accessing their property.

FILE: 04606056026

TICKLE FILE:

FOLLOW-UP-BY:

COPY/ROUTE TO:

FOLLOW-UP-ACTION:

REFERENCE 10
Not Used

REFERENCE 11
Not Used

REFERENCE 12
Not Used

REFERENCE 13
Not Used

REFERENCE 14

Wilcox Oil Company (CERCLIS ID OKD0001010917)
Net Annual Precipitation Calculation

Month	Precipitation (inches)	Temperature (degrees F)	Factor	Evaporation (inches)	Net Precipitation (inches)
Jan	1.50	37.0	0.83	0.10	1.41
Feb	1.64	42.0	0.91	0.34	1.30
Mar	2.09	49.0	0.99	0.91	1.18
Apr	3.41	61.0	1.09	2.46	0.95
May	5.18	68.0	1.18	3.84	1.34
Jun	4.32	77.0	1.22	5.81	0.00
Jul	2.85	83.0	1.20	7.10	0.00
Aug	2.70	82.0	1.13	6.48	0.00
Sep	3.30	74.0	1.04	4.40	0.00
Oct	2.82	63.0	0.94	2.39	0.43
Nov	1.90	49.0	0.85	0.78	1.12
Dec	1.43	41.0	0.81	0.25	1.18

Annual Net Precipitation 8.91 inches

$$a = 6.75e-7 I^3 - 7.71e-5 I^2 + 1.79e-2 I + 0.49$$

$$I = \sum_{i=1}^{12} (T_i/5)^{1.5}$$

$$E_i = 1.6F_i(10T_i / I)^a$$

E_i = Monthly potential evapotranspiration in inches for month i.

F_i = Monthly latitude adjusting value for month i.

T_i = Mean monthly temperature in degrees Celsius for month i.

Source: Dunne, T. and Leopold, L.B. 1978. Water in Environmental Planning. W.H. Freeman and Company, New York.

REFERENCE 15
Not Used

REFERENCE 16
Not Used

REFERENCE 17

NATIONAL FLOOD INSURANCE PROGRAM

FHBM

FLOOD HAZARD BOUNDARY MAP

**CREEK
COUNTY,
OKLAHOMA
UNINCORPORATED AREA**

PANEL 7 OF 10

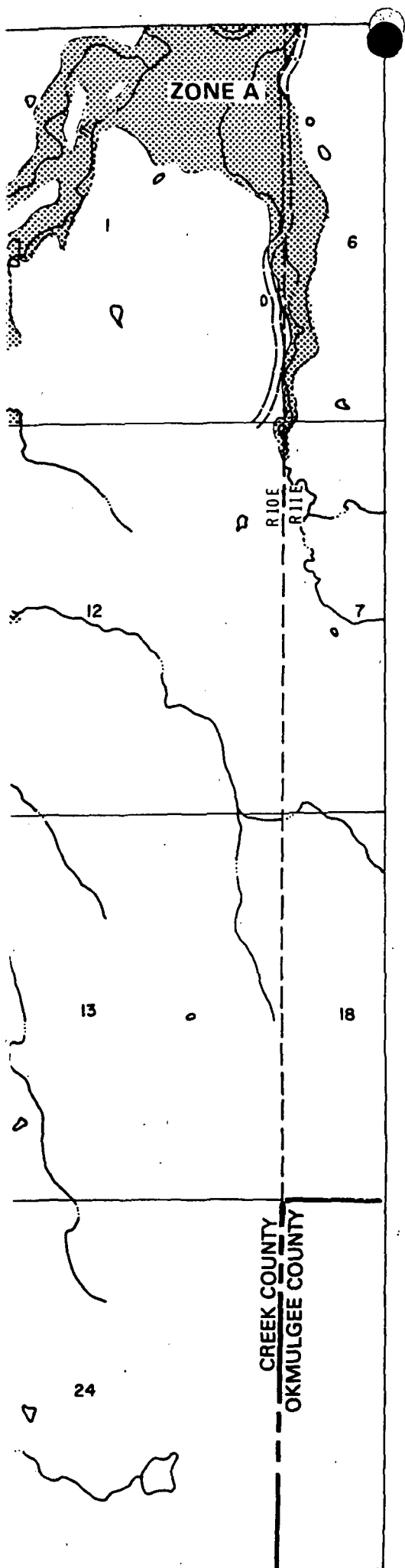
(SEE MAP INDEX FOR PANELS NOT PRINTED)

**COMMUNITY-PANEL NUMBER
400490 0007 A**

**EFFECTIVE DATE:
MAY 19, 1981**



**federal emergency management agency
federal insurance administration**



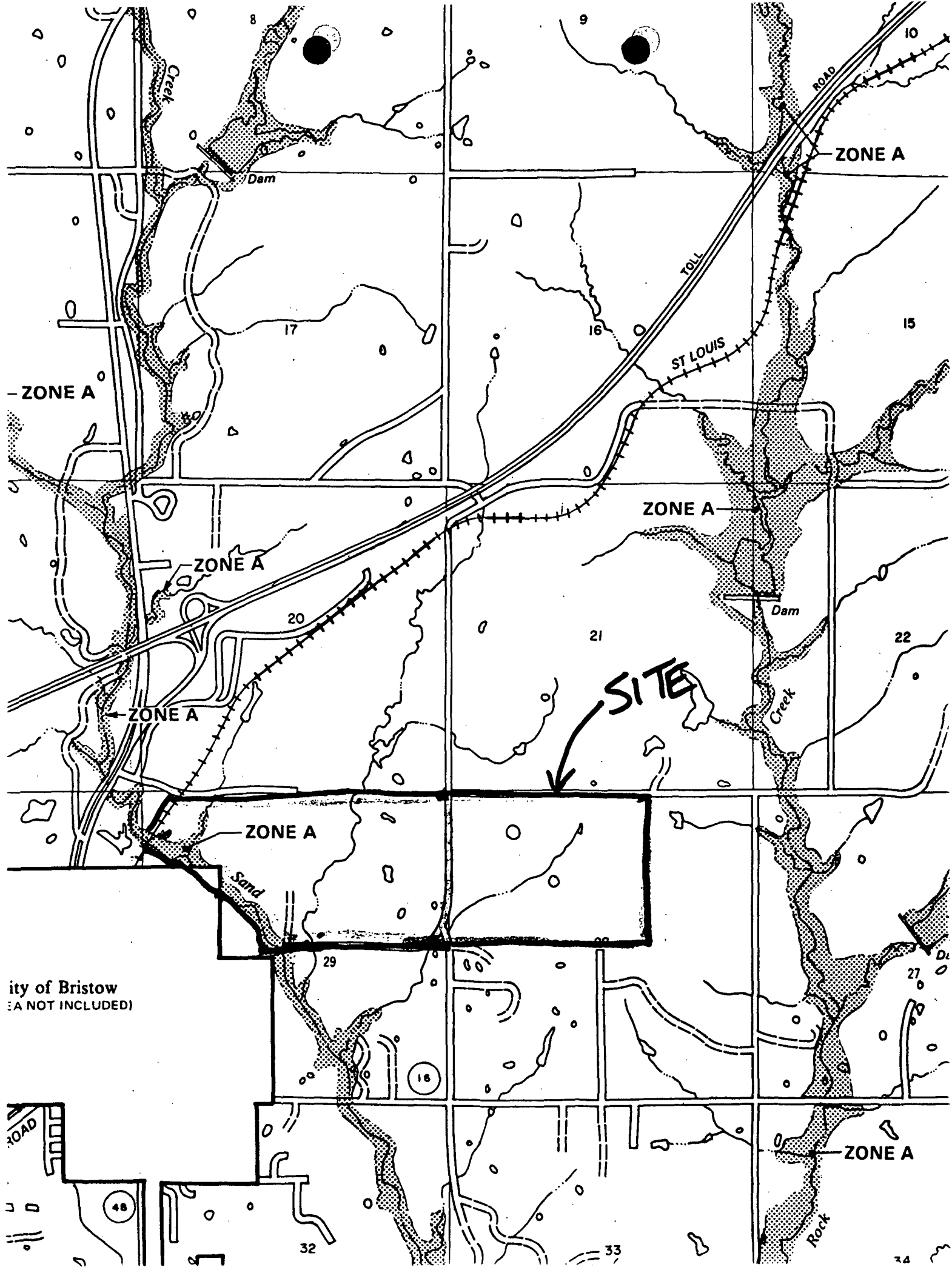
KEY TO MAP

**SPECIAL FLOOD HAZARD
AREA**

ZONE A

Note: These maps may not include all Special Flood Hazard Areas in the community. After a more detailed study, the Special Flood Hazard Areas shown on these maps may be modified, and other areas added.

TO DETERMINE IF FLOOD INSURANCE IS AVAILABLE IN THIS COMMUNITY, CONTACT YOUR INSURANCE AGENT, OR CALL THE NATIONAL FLOOD INSURANCE PROGRAM, AT (800) 638-6620, OR (800) 424-8872.



City of Bristow
(EA NOT INCLUDED)

REFERENCE 18

PREFACE

WEATHER BUREAU

F. W. RICHMONDS, Chief

DEPARTMENT OF COMMERCE

H. H. HARRIS, Secretary

TECHNICAL PAPER NO. 40

RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

for Durations from 30 Minutes to 24 Hours and
Return Periods from 1 to 100 Years

Prepared by
DAVID M. HERSHFIELD
Cooperative Studies Section, Hydrologic Services Division
for
Engineering Division, Soil Conservation Service
U.S. Department of Agriculture

THIS ATLAS IS OBSOLETE FOR THE FOLLOWING 11 WESTERN STATES: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

NOAA ATLAS 2: PRECIPITATION-FREQUENCY ATLAS OF THE WESTERN UNITED STATES (GPO: 11 Vols., 1973) supersedes the Technical Paper 40 data for these states.

All but 3 of the 11 state volumes are out of print, and no reprint is presently planned.

Institutions in the eleven western states likely to have copies of these volumes for their state for public inspection are:

US Department of Agriculture Soil Conservation Service Offices
US Army Corps of Engineers Offices
Selected University Libraries
National Weather Service Offices (may also have volumes for adjacent states).
National Weather Service Forecast Offices (may have all eleven volumes)

Elsewhere, libraries of universities where hydrology and meteorology degree programs are offered may shelve some of the eleven volumes.

The three volumes in print as of 1 Jan 1983 at the GPO are:

Vol	State	GPO Stock Number	Price
IV	New Mexico	003-017-00158-0	\$10.00
VI	Utah	003-017-00160-1	12.00
VII	Nevada	003-017-00161-0	2.50

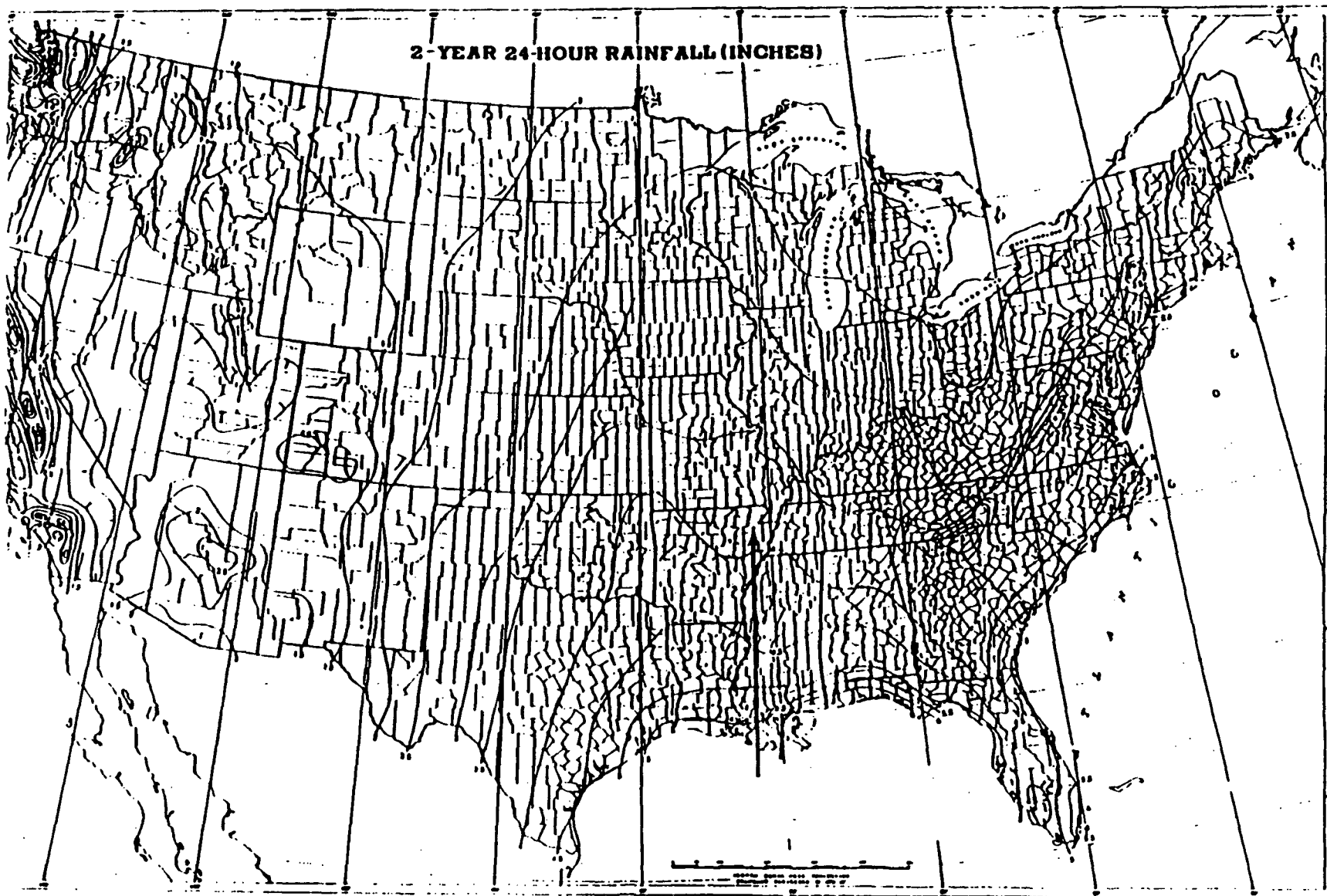


WASHINGTON, D.C.

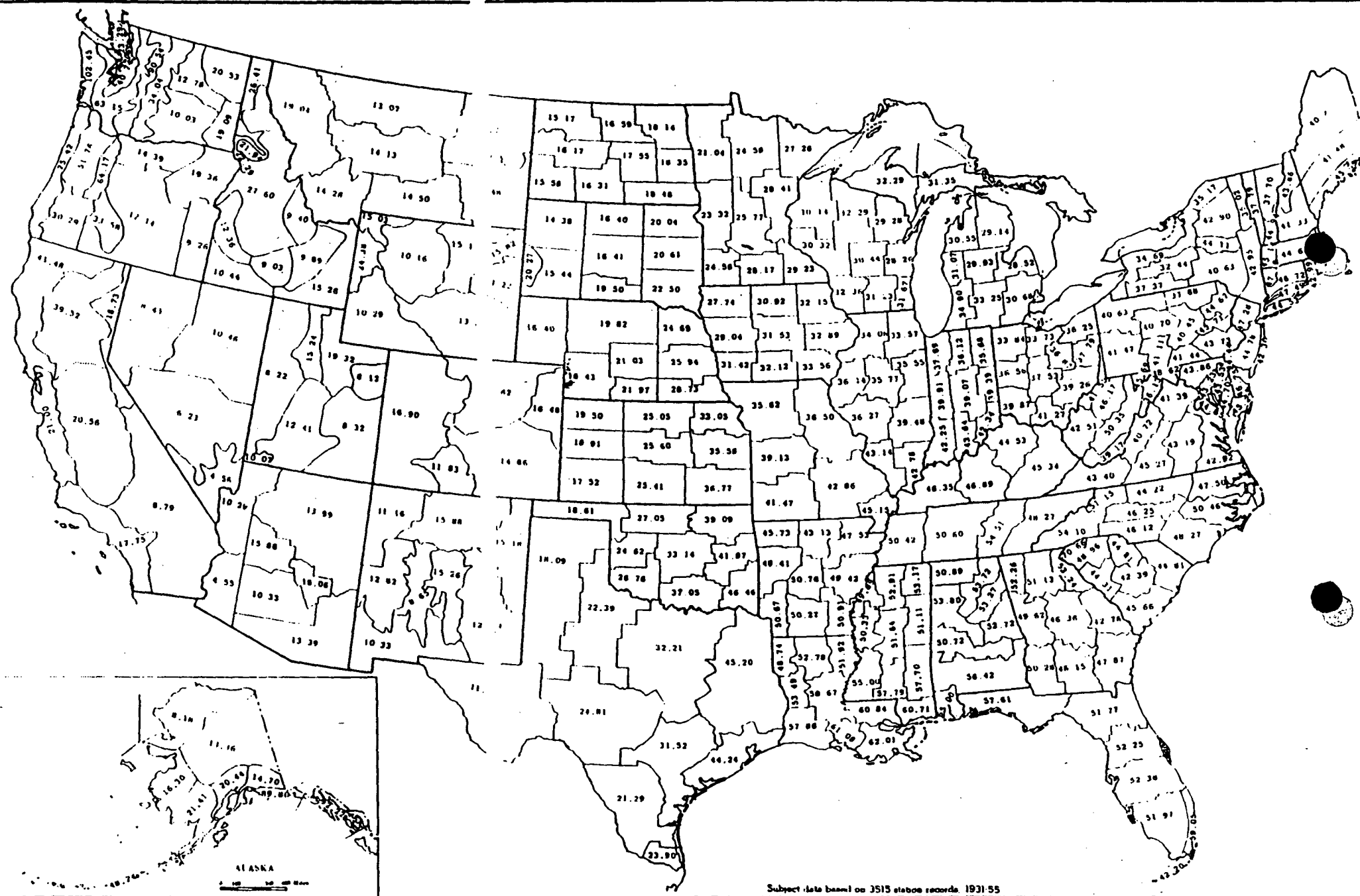
NOTICE

Rainfall frequency information for durations of 1 hour and less for the Central and Eastern States has been superseded by NOAA Technical Memorandum NWS HYDRO-15 Five to Sixty Minute Precipitation Frequency for the Eastern and Central United States. This publication (Accession No. PB 772-117/AS) is obtainable from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161



MEAN ANNUAL TOTAL PRECIPITATION (inches) BY STATE CLIMATIC DIVISIONS



Subject data based on 3515 station records, 1931-55

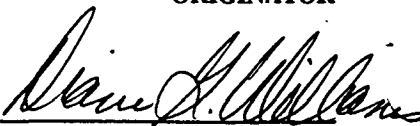
REFERENCE 19
Not Used

REFERENCE 20
Not Used

REFERENCE 21

WESTON
PHONE CONVERSATION RECORD

ORIGINATOR


Diane G. Williams

☐ ORIGINATOR RECEIVED CALL

☒ ORIGINATOR PLACED CALL

CONVERSATION WITH:

DATE: 02/26/97

NAME: Mark Ambler
Oklahoma Fish and Wildlife

TIME: 14:00

PHONE: (918) 683-1031

W.O. NO.: 04606-056-026-0600

SUBJECT: Wilcox Oil Company - Downstream fisheries.

NOTES: I asked Mr. Ambler if any fishing activities occur in Sand Creek or the Little Deep Fork Creek. He stated that limited fishing occurs on private lands in both creeks.

FILE: 04606056026

TICKLE FILE:

FOLLOW-UP-BY:

COPY/ROUTE TO:

FOLLOW-UP-ACTION:

REFERENCE 22

SCOTT L. S. UNDERWILE

Creek County Oklahoma



UNIVERSITY OF OKLAHOMA LIBRARY

1000 EAST UNIVERSITY AVENUE
TULSA, OKLAHOMA 74106

DATE OF ACQUISITION: 1983-01-01

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by a good cover of native grass, but they may erode slightly if overgrazed.

Collinsville and Talihina soils, sloping (4 to 12 percent slopes) (Ce).—The soils in this mapping unit are shallow and stony. About 60 percent of the acreage is Collinsville loam, which occupies the crests of ridges or low hills that are capped with sandstone. About 40 percent is Talihina clay loam, which occurs on the slopes below the Collinsville soils, where shale and interbedded sandstone and shale outcrop. The two soils usually occur in narrow bands that are too small to separate on the map. Tall grasses, mainly little bluestem and side-oats grama, are dominant, but some short grasses, mainly buffalograss and hairy grama, grow on the Talihina soils. Some areas are thinly covered with scrubby post oak, elm, and mesquite.

Profile of Talihina clay loam, about 3 miles west of Kiefer:

- 0 to 8 inches, olive-gray or dark grayish-brown clay loam; strong granular structure; crumbly and friable when moist, very hard when dry; has numerous sandstone fragments on the surface; slightly acid.
- 8 to 30 inches+, pale-olive or olive slightly weathered shale that contains thin layers of light-gray or brown clay and silty shale; neutral.

The Collinsville soil is described under Collinsville and Bates soils, gently sloping.

On slopes below areas of Collinsville stony loam, the Talihina soil has numerous sandstone fragments ranging up to 2 feet in diameter on the surface.

Use and management (Capability unit VIs-1).—The soils of this unit should not be cultivated, because they are very low in productivity. Most of the area is used for grazing. These soils are in the Shallow prairie range site. They produce moderate amounts of fairly nutritious grasses, but they are commonly overgrazed late in the summer or in long dry periods. The soils are droughty because they are so shallow. Runoff is moderate to rapid.

Collinsville and Talihina soils, strongly sloping (12 to 20 percent slopes) (Cf).—This mapping unit occurs in narrow valleys, on escarpments, and on hills dissected by natural stream channels. The soils are shallower than those in the sloping phase of Collinsville and Talihina soils, and the surface is stonier.

These soils are less than 8 inches deep over bedrock. The vegetation is a thin stand of grasses, mainly little bluestem, grama, and buffalograss. Mesquite and post oak trees are scattered over the area and form a fairly thick cover along stream channels and next to sandy forested areas.

In some places, limestone underlies the thin soil profile. Included in the mapping unit are areas of Sogn and Vernon soils, which are reddish brown and overlie red clay and shale. These areas are so small and so intermixed with the other soils that they cannot be mapped separately, and the soils are not described separately in this report.

Use and management (Capability unit VIs-1).—This unit is unfit for any use except grazing. It is in the Shallow prairie range site. It has a low carrying capacity. Grazing should be controlled carefully because these soils erode easily.

Darnell series

These very shallow acid soils developed over reddish sandstones under forest. They are too shallow for cropland and are used mainly for woodland pasture.

Darnell soils have a thin grayish-brown sandy surface soil a few inches thick. A thin light-brown or light-yellow sandy subsurface layer overlies sandstone at depths of 5 to 20 inches. Sandstone outcrops are common. Most areas have a few to numerous loose sandstone fragments on the surface.

In Creek County, Darnell soils are mapped only in mixed mapping units with either Pottsville or Stephenville soils.

Darnell and Pottsville soils, sloping (4 to 12 percent slopes) (Da).—This is an extensive mapping unit that occupies the greater part of the sloping, forested areas of the county. It consists of very shallow, more or less sandy and stony, acid soils that overlie slightly acid to neutral reddish or yellowish interbedded sandstone, silty or sandy shale, and shale. About 55 percent of the acreage is Darnell stony fine sandy loam, and about 35 percent is Pottsville stony loam. Small areas of Stephenville fine sandy loam and spots of Talihina soils are scattered through this mapping unit.

The native vegetation was a scrub forest of blackjack and post oaks. Some elm and hickory trees and scattered coarse grasses, mainly bluestems, also grew in these places. Surface drainage is rapid. Internal drainage is moderate in the Darnell soils, but it is very slow in the Pottsville soils.

Profile of Darnell stony fine sandy loam under native scrubby forest on a slope of about 7 percent, about 5 miles west of Bristow in the SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 16 N., R. 8 E.:

- 0 to 4 inches, dark grayish-brown fine sandy loam; very friable when moist, nearly loose when dry; numerous small and large sandstone fragments in the soil and on the surface; slightly acid.
- 4 to 8 inches, light-brown fine sandy loam; nearly loose when dry; contains fragments of partly weathered sandstone; medium to slightly acid.
- 8 inches+, red or reddish-yellow sandstone bedrock; slightly acid.

The combined thickness of the two layers of fine sandy loam ranges from 5 to 20 inches within a distance of a few feet. In some places a 3- to 5-inch subsoil of reddish sandy clay loam overlies the bedrock.

Profile of Pottsville stony loam about 5 miles west of Bristow in the NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 33, T. 16 N., R. 8 E.:

- 0 to 3 inches, dark grayish-brown loam; weak granular structure; friable; numerous fragments of sandstone, up to 18 inches in diameter, on the surface; slightly acid.
- 3 to 8 inches, yellowish-red clay loam; crumbly when moist, sticky and plastic when wet; medium acid.
- 8 to 30 inches+, mottled olive-brown and yellow or red and olive-yellow shaly clay; contains interbedded layers of brown sandstone; medium acid.

The thickness of the upper two horizons combined ranges from about 3 to 15 inches, and the texture ranges from fine sandy loam to clay. The bedrock that underlies this soil is sandstone in some places, and in other places, sometimes only a few feet away, it is slightly weathered shale.

Use and management (Capability unit VIs-2).—This unit is entirely unsuitable for cropland and of low value for woodland or woodland pasture. It is in the Shallow savanna range site. Most of this unit is still under a cover of native scrubby blackjack oak, post oak, elm, and hickory trees. It erodes very easily even under its natural cover of forest. The shallowness of the profile is the result of normal erosion.

- massive to weakly granular structure; friable when moist, very hard and compact when dry; slightly acid.
- 15 to 24 inches, grayish-brown heavy clay, mottled with yellowish red and yellowish brown; weak blocky structure; very compact and very sticky when moist, extremely hard when dry; very slowly permeable; medium acid.
- 24 to 42 inches+, mottled gray and light olive-brown heavy clay; very sticky and stiff when wet; very slowly permeable; slightly acid in upper part, neutral in lower part.

The thickness of the surface soil ranges from about 10 to 18 inches, and the texture ranges from very fine sandy loam to loam. On a few low sandy mounds the surface soil is fine sandy loam 18 to 30 inches thick. The third layer ranges from dense clay to compact, slowly permeable sandy clay; in places it contains pockets and lenses of sandy loam.

Use and management (Capability unit IIs-1).—This soil is not susceptible to erosion. Fertility is low to moderate. The soil remains wet and cold late in the spring, and when it dries the surface soil crusts and bakes. If the soil is not worked at exactly the right moisture content, large clods form that make it very difficult to maintain a good seedbed.

This soil is not well suited to most common field crops, but it is moderately well suited to native hay or pasture. Most of it is now used for pasture. About one-third of the soil is used for crops, mostly cotton, corn, and sorghums. This soil is in the Claypan prairie range site.

Oil-waste land

Oil-waste land (Oa).—The areas mapped in this miscellaneous land type have been practically ruined for agricultural use by oil and salt-water waste from oil wells. They are more or less gullied and eroded and are almost bare of vegetation. They range in size from about one acre to several acres.

Use and management (Capability unit VIII).—This land is of no value for crops or pasture in its present condition. Some of the less strongly sloping and less severely gullied areas may eventually be revegetated by natural means if no more oil or salt-water waste is dumped on them.

Okemah series

These soils have developed from weakly alkaline shales and clays under a cover of grass in nearly level to gently sloping shallow valleys. They are moderately well drained, dark colored, and slightly acid. They have a dark-colored, crumbly and granular surface soil and upper subsoil. Their lower subsoil is mottled olive-yellow and gray compact clay.

Okemah soils are not mapped separately in Creek County. They are closely associated with soils of the Dennis series in some places and with soils of the Woodson series in others, and are mapped in units with soils of one or the other of these series. The Woodson soils differ from the Okemah soils in being dark gray and having a claypan. The Dennis soils, where they are associated with the Okemah soils, lie in slightly higher positions and have developed from less clayey materials. The Dennis soils are browner than the Okemah soils, and they have more rapid runoff and internal drainage.

A profile of an Okemah soil as mapped with the Woodson soils is described under Okemah and Woodson clay loams, and a profile of an Okemah soil as mapped with

Dennis soils is described under Dennis and Okemah loams, gently sloping.

Okemah and Woodson clay loams (0 to 1 percent slopes) (Ob).—These two soils occur intermixed in small areas or separately in areas of several acres. Woodson clay loam occupies the nearly level, usually lower-lying parts of shallow valleys, and Okemah clay loam the gently sloping, slightly higher surrounding areas, but the two soils are so closely associated that it is not practical to map them separately. They merge with little or no difference in surface appearance. The parent materials of both soils are olive or olive and yellow weakly alkaline clays and shales. The mapping unit occurs mostly in shallow valleys near Kiefer, Mounds, and Edna. Runoff is slow to moderate, and internal drainage is very slow. The native vegetation was tall grasses, mainly big bluestem, little bluestem, side-oats grama, and Indiangrass.

Profile of Okemah clay loam near Mounds in the SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 17, T. 16 N., R. 12 E.:

- 0 to 15 inches, dark-gray clay loam, lower part slightly mottled with brown; granular and friable when moist, very hard when dry; surface crusts in cultivated fields on drying; slightly acid.
- 15 to 20 inches, dark grayish-brown silty clay loam, slightly mottled with brownish yellow and strong brown; crumbly and friable when moist, sticky and plastic when wet; moderately permeable; slightly acid.
- 20 to 35 inches, mottled grayish-brown and light olive-brown heavy clay; very sticky and stiff when wet, extremely hard when dry; compact and very slowly permeable; neutral.
- 35 to 48 inches+, mottled light-gray and olive-yellow clay; very compact; very slowly permeable; weakly alkaline.

The texture of Okemah clay loam ranges from loam to clay loam. The depth to the heavy clay layer ranges from 18 to 25 inches. A few shotlike concretions of iron oxide occur in the two clay layers.

Profile of Woodson clay loam about 1 mile south of Kiefer in the SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 28, T. 17 N., R. 12 E.:

- 0 to 12 inches, dark-gray clay loam; the 6-inch plow layer is slightly lighter in color; crumbly and friable when moist, very hard when dry; surface crusts on drying; slightly acid.
- 12 to 22 inches, dark-gray heavy clay, faintly mottled with brown; very compact claypan; very sticky and stiff when wet; very slowly permeable; slightly acid to neutral.
- 22 to 38 inches, dark grayish-brown clay; mottled with yellowish brown; very compact; extremely hard when dry; very slowly permeable; weakly alkaline.
- 38 to 46 inches+, mottled gray, olive-brown, and yellowish-brown clay or shaly clay; contains a few crystals of gypsum and small shotlike concretions of iron oxide; alkaline but not calcareous.

The thickness of the surface soil ranges from 10 to 14 inches. Considerable mottling occurs in the upper subsoil in the areas that grade toward the Okemah soil.

Some small areas of Parsons silt loam near Kiefer are included in this mapping unit. These areas have a dark grayish-brown silt loam surface soil 12 inches thick, which rests on a mottled grayish-brown, strong-brown, and pale-yellow claypan subsoil. The Parsons soils are not extensive enough in Creek County to be mapped separately and are not described in this report.

Use and management (Capability unit I-4).—The two soils in this mapping unit are the darkest colored and finest textured soils of the prairies. They are the most fertile and productive soils for common field crops that occur in the uplands of this county. Okemah clay loam is slightly more productive than Woodson clay loam. Both soils have a moderately high water-holding capacity

These inclusions consist of 10 to 18 inches of light-brown fine sandy loam over dark grayish-brown silt loam or clay loam, overlain by recent deposits of lighter colored, sandier soil materials.

Use and management (Capability unit IIIw-1).—This soil is moderately productive. It is easily worked and fairly resistant to drought. It is not susceptible to erosion, but some material may be deposited on the surface by flood waters. Cropping is hazardous because most areas are flooded several times a year.

This soil is moderately well suited to crops and, in spite of the flood hazard, about one-fifth of the area is cropped. Cotton, corn, and sorghums are the chief crops. This soil is well suited to pasture, and about one-third is used for this purpose. Nearly half has been left in native forest. The soil is in the Loamy bottom-land range site.

Reinach series

Soils of the Reinach series developed from alkaline to calcareous, reddish, silty to moderately sandy alluvium on low, nearly level stream terraces. They are moderately productive soils and easily worked. They are well suited to all general crops of this area, including alfalfa.

The Reinach soils have a brown to reddish-brown friable surface soil and a silty to moderately sandy subsoil. They are similar to the Yahola soils that occur on the present flood plains, but the Reinach soils lie a little higher and are above ordinary overflow. Their surface soil is darker than the Yahola surface soil, and is alkaline, though usually noncalcareous. Only one Reinach soil is mapped in Creek County.

Reinach very fine sandy loam (0 to 1 percent slopes) (Ra).—This soil occurs on low terraces or benches a few feet higher than the flood plains of the Cimarron River. It developed from reddish, silty to moderately sandy, alkaline, calcareous alluvial sediments. Prairie grasses and scattered elm, hackberry, pecan, and oak trees were the native vegetation. Runoff is slow, and internal drainage is moderate to rapid.

Profile of Reinach very fine sandy loam about 3½ miles north of Drumright on a low terrace of the Cimarron River:

- 0 to 14 inches, reddish-brown very fine sandy loam; the 6-inch plow layer is light reddish brown; weak granular structure; very friable; neutral.
- 14 to 46 inches+, light reddish-brown very fine sandy loam that contains thin strata of reddish-brown and brown silt loam in lower part; friable; very permeable; neutral.

The surface soil ranges from brown to light reddish brown in color and from fine sandy loam to silt loam in texture. Some small areas next to more strongly sloping Teller soils have an overwash of light-brown, slightly acid fine sandy loam, 4 to 10 inches thick.

Use and management (Capability unit I-1).—This soil is well suited to crops and pasture. Most of it is cultivated. Corn, cotton, sorghums, and alfalfa are the principal crops. This soil is easily worked and is not susceptible to erosion. It is in the Loamy bottom-land range site.

Roebuck series

Soils of this series consist of only slightly modified clayey alluvium washed from prairie soils that developed over redbeds. The alluvial deposits are alkaline to weakly calcareous. The native vegetation was forest. Both

runoff and internal drainage are slow to very slow. Most areas are too poorly drained or too frequently flooded to be suitable for cropping unless artificially drained and protected from floods.

The surface soil is reddish brown. The subsoil is reddish clay, slightly mottled with brown and grayish brown. Roebuck clay is the only soil of this series that is mapped in Creek County.

Roebuck clay (0 to 1 percent slopes) (Rb).—This soil occupies parts of the flood plain of the Deep Fork River, where the channel is choked or partly filled by silting. It developed from clayey and silty, alkaline or calcareous, reddish alluvium. A native forest of elm, hackberry, oak, willow, pecan, and cottonwood covers these areas.

This is a poorly drained soil. Both runoff and internal drainage are very slow. The level flood plains are subject to frequent floods. This soil is not susceptible to erosion, but most areas are rapidly being covered with silt.

Profile of Roebuck clay:

- 0 to 20 inches, reddish-brown clay; moderately crumbly when moist, very sticky and plastic when wet; weakly alkaline.
- 20 to 45 inches+, reddish-brown heavy clay, slightly mottled with other shades of brown and some grayish brown; very sticky and stiff when wet, very hard when dry; slowly permeable; weakly calcareous.

Small areas have recent deposits of reddish-brown or brown, alkaline or calcareous, somewhat stratified clay loam and clay, 5 to 15 inches thick. In some places the subsoil below about 30 inches is stratified with brown clay loam and dark-gray calcareous clay.

Use and management (Capability unit Vw-1).—Nearly all of this soil is still in woodland. It is very fertile and would be highly productive if it were drained and protected from flooding, but drainage and flood protection are so difficult as to be almost impossible. Clearing underbrush and culling trees to allow native pecan orchards and bermudagrass pastures to develop may be practical. This soil is in the Heavy bottom-land range site.

Stephenville series

Soils of this series are of medium depth over the parent materials of soft reddish sandstone or interbedded sandstone and sandy shale. They developed under a scrubby forest of mixed blackjack oak and post oak. Scattered coarse grasses grew in open areas.

These soils are slightly acid. They have a light-colored friable sandy surface layer and a yellowish-red or red friable sandy clay loam subsoil. The subsoil grades into the parent material, usually at a depth of less than 3 feet.

The Stephenville soils occupy nearly level to moderately sloping areas and are closely associated with the very shallow Darnell soils. The two soils are similar in surface appearance, but the Stephenville soils are 20 to 36 inches deep and the Darnell soils are 5 to 20 inches deep over sandstone. Sandstone outcrops are common in both.

In this county, the Stephenville soils are mapped only in units with the Darnell soils. The two series have similar uses and are about equal in productivity.

Stephenville and Darnell fine sandy loams, gently sloping (2 to 4 percent slopes) (Sa).—Stephenville fine sandy loam occupies about 70 percent of this mapping unit. Small areas of Darnell fine sandy loam make up the other 30 percent. This unit is very extensive in the central, southern, and western parts of the county.

These shallow to moderately deep upland soils developed over reddish-yellow to red sandstone or interbedded sandstone and sandy shale. The parent materials were slightly acid to neutral. The native vegetation was a thin to moderately thick forest of scrubby blackjack oak and post oak, and a thin ground cover of bluestem grasses. Both soils are well drained. Runoff is slow to moderate, but internal drainage is moderate to rapid.

Profile of Stephenville fine sandy loam, gently sloping, under a moderately thick cover of scrubby post oak and blackjack oak and bluestem grasses, about 2 miles east of Depew in the SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 9, T. 15 N., R. 8 E.:

- 0 to 4 inches, grayish-brown fine sandy loam; in plowed fields this layer is pale brown; weak granular structure; very friable; slightly acid.
- 4 to 12 inches, pale-brown light fine sandy loam; very friable when moist, nearly loose when dry; slightly acid.
- 12 to 28 inches, yellowish-red sandy clay loam; massive structure; crumbly and friable when moist, slightly sticky when wet; porous and permeable; medium acid.
- 28 to 35 inches, yellowish-red sandy clay loam, mottled with red; friable; permeable; contains small soft fragments of partly weathered sandstone; medium to slightly acid.
- 35 inches +, yellowish-red sandstone bedrock; slightly acid to neutral.

The depth to bedrock ranges from about 20 to 40 inches; normally it is less than 30 inches. A few small outcrops of the sandstone bedrock occur.

Profile of Darnell fine sandy loam in a cultivated field of about 2 percent slope, in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 16, T. 15 N., R. 8 E.:

- 0 to 10 inches, pale-brown light fine sandy loam; structureless; very friable when moist, nearly loose when dry; slightly acid.
- 10 to 16 inches, reddish-yellow fine sandy loam, slightly heavier in lower part; structureless; friable; lower part contains small fragments of partly weathered sandstone; medium acid.
- 16 inches +, reddish-yellow sandstone bedrock; neutral.

The depth of the Darnell soil ranges from about 5 to 20 inches. Most areas are between 8 and 15 inches deep. Small outcrops of sandstone bedrock occur here and there. The transition between the deeper Stephenville soil and the shallower Darnell soil is hardly noticeable; there is no change in slope or in color of the surface soil. Another profile of Darnell soil, as it typically occurs when associated with soils of the Pottsville series, is described under Darnell and Pottsville soils, sloping.

Use and management (Capability unit IIIe-2).—These soils are droughty and low in fertility. They are slightly to moderately susceptible to erosion if cultivated. Most of the cleared acreage has lost up to 20 percent of its surface soil through erosion. Some shallow gullies occur on the more strongly sloping cleared areas.

These soils are moderately well suited to crops and pasture. Yields are moderate under good management. Intensive management is needed to maintain or increase productivity.

About half of this mapping unit is cleared. Most of the cleared acreage has been abandoned for cropping, and it is now used for pasture. Cotton, peanuts, sorghums, corn, cowpeas, and sweetpotatoes are the principal crops. The pastures have a thin cover of three-awn grasses, bluestem grasses, and weeds. This unit is in the Sandy savanna range site. Nearly half of it is native woodland.

Stephenville and Darnell fine sandy loams, sloping (4 to 7 percent slopes) (Sb).—These soils are like Stephenville

and Darnell fine sandy loams, gently sloping, except that the surface soil is somewhat thinner, the bedrock is nearer the surface, and outcrops of sandstone are more common. About 60 percent of the acreage consists of Stephenville soils and about 40 percent of Darnell soils.

Use and management (Capability unit VIe-1).—This land is not well suited to crops. It is droughty, low in natural productivity, and highly erodible if cultivated. Moderate yields of common field crops are produced when the soils are first cultivated, but yields decline rapidly.

More than half of this mapping unit is still in woodland. The remainder has been cleared, but little is still used for crops. Cotton, corn, sorghums, peanuts, and cowpeas are grown. Yields are about three-fourths as much as on the gently sloping soils. Most of the acreage that was cleared, cultivated, and abandoned is now in pasture. The vegetation is three-awn grass and weeds. This unit is in the Sandy savanna range site.

If these soils are cultivated, very careful management is needed. They should be terraced, stripcropped, and contour-cultivated, and erosion-resistant crops should be planted. Areas where the soils are too shallow to be terraced should be used for pasture.

Stephenville and Darnell fine sandy loams, sloping, severely eroded (4 to 7 percent slopes) (Sc).—The soils in this mapping unit have been so severely eroded that they are worthless for crops. Originally, they were like Stephenville and Darnell fine sandy loams, sloping, but erosion has removed much of the surface soil. Numerous gullies are now active; some cannot be crossed with tillage implements.

Use and management (Capability unit VIIe-2).—These soils were never well suited to crops, and now they are of no value for crops. All of the acreage has been cultivated, but most of it is now idle or in pasture. A thin stand of annual grasses and weeds furnishes poor grazing. It would take careful management to establish even moderately good pastures. Cotton, corn, sorghums, cowpeas, and peanuts are still grown on a few acres, but yields are low. This mapping unit is in the Eroded savanna range site.

Stidham series

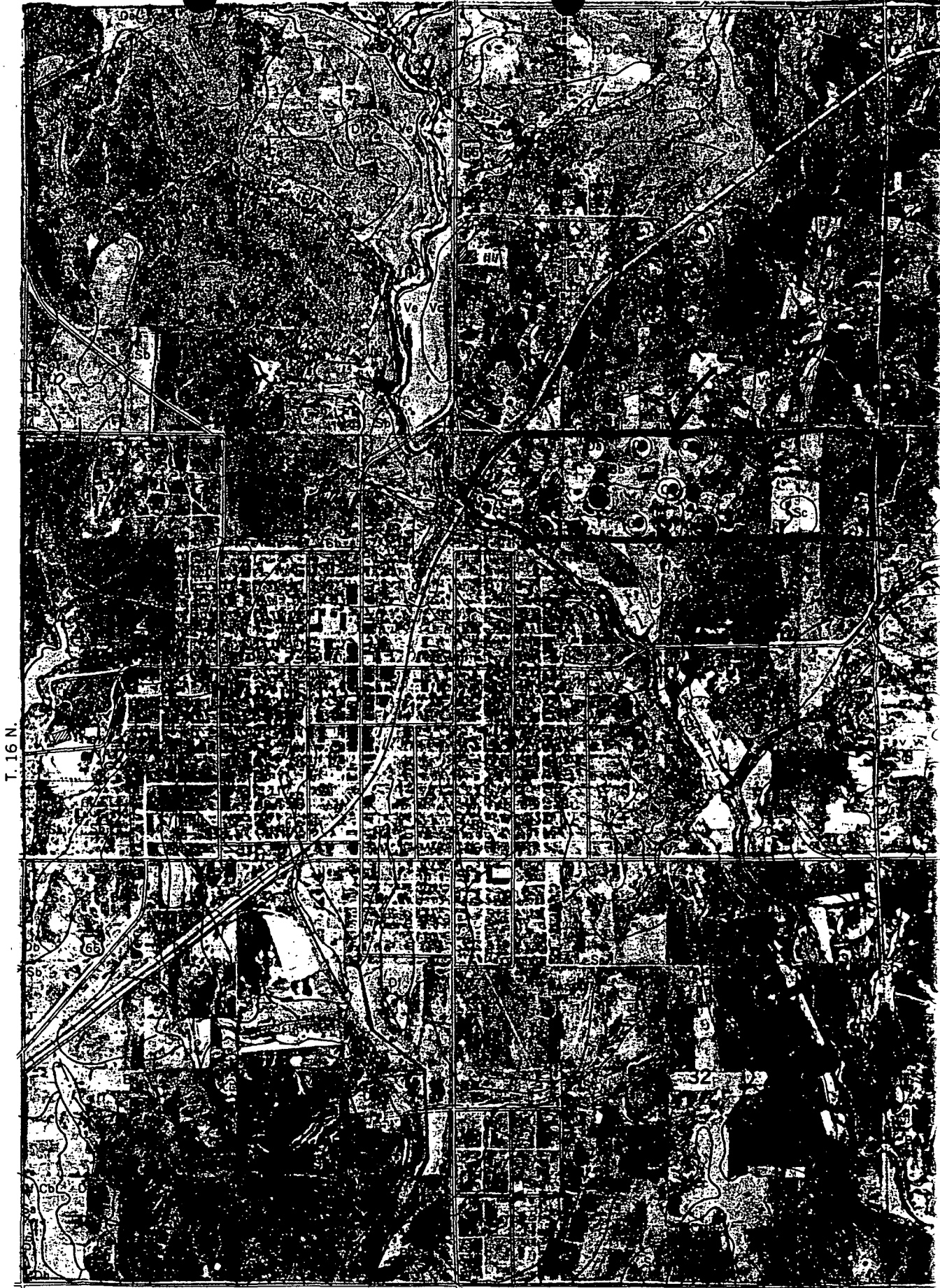
The Stidham soils developed from acid sandy old alluvium on stream terraces under a mixed hardwood forest. They are low in natural fertility, but they are very responsive to management. They are well suited to fruits, special crops, and field crops.

Soils of this series have a light brownish-gray to pale-brown, friable, acid surface soil. The subsoil is yellowish-brown friable sandy clay loam, mottled with light gray and strong brown in the lower part.

Stidham soils are closely associated with Dougherty soils, which have a reddish subsoil, and with Eufaula soils, which have no loamy subsoil within 4 feet of the surface. In Creek County, the Stidham soils are not mapped separately. They are mapped in units with soils of the Dougherty series. A profile of a Stidham soil is described under Dougherty and Stidham fine sandy loams, nearly level.

Talihina series

The Talihina soils developed from beds of slightly acid to neutral, gray, brown, and olive shale that included a little sandstone. They are very shallow, slightly acid



T. 16 N.

0

 $\frac{1}{2}$

1 Mile

Scale 1:2000

REFERENCE 23
Not Used

REFERENCE 24

TARGET SHEET

SITE NAME: WILCOX OIL COMPANY

CERCLIS I.D.: OK0001010917

TITLE OF DOC.: EXPANDED SITE INSPECTION

DATE OF DOC.: 03/01/1997

NO. OF PGS THIS TARGET SHEET REPLACES: 356

SDMS #: 87534 **KEYWORD:** 10.06

CONFIDENTIAL ? ☐ **MISSING PAGES ?** ☐

ALTERN. MEDIA ? ☐ **CROSS REFERENCE ?** ☒

LAB DOCUMENT ? ☐ **LAB NAME:**

ASC./BOX #: **RAW ANALYT. DATA ?** ☐

CASE #: **SDG #:**

COMMENTS : Reference 24, the Expanded Site Inspection Report for Wilcox Oil Company, is doc ID 87534 in SDMS-C.